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ABSTRACT

The operation of computerized management information systems (MISs) for adult basic education in 27 states and 21 local programs was the focus of a research study. During 1991 and 1992, state adult education directors and MIS specialists were interviewed by telephone regarding MIS organization and content; local personnel were interviewed regarding data collection and use. Findings indicated that data were collected by local programs and maintained on computers, then transferred to states by modem or floppy disk. States maintained data in an aggregated format or in individual student records. Data collection by state MISs was strongly influenced by federal requirements. In 11 of 19 MISs that maintained individual student record data, there was an effort to share data or collaborate on data collection with other programs. Data collection by local providers was dictated by state and federal reporting requirements. Local program directors or the teachers themselves inspected printouts to check data accuracy. Each state provided workshops on data entry and computer program maintenance. Implementation was hindered by limited computer literacy, too short a timetable, insufficient funding to hire data entry staff, and inflexible software. Benefits of MISs to local programs were more accurate information and quick information generation. (Appendixes to the 22-page report include a comparison of computerized MISs, a chart of state MISs, and state survey reports.) (YLB)

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NCAL

NATIONAL CENTER ON ADULT LITERACY

MANAGEMENT INFORMATION SYSTEMS IN ADULT EDUCATION:

PERSPECTIVES FROM THE STATES AND FROM LOCAL PROGRAMS

Mark A. Kutner
Lenore Webb
Rebecca Herman
Pelavin Associates, Inc.

NCAL TECHNICAL REPORT TR93-4
SEPTEMBER 1993

U.S. DEPARTMENT OF EDUCATION
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MANAGEMENT INFORMATION SYSTEMS IN ADULT EDUCATION:

PERSPECTIVES FROM THE STATES AND FROM LOCAL PROGRAMS

Mark A. Kutner
Lenore Webb
Rebecca Herman
Pelavin Associates, Inc.

Abstract

Adult education and literacy services are operated by local school districts, community colleges, and community-based organizations throughout the country. Along with the tremendous expansion of adult education and literacy programs in recent years, there is an expanding need to collect and analyze data about these programs. This study examines the operation of adult education computerized management information systems in 27 states and 21 local programs. Data were collected through telephone interviews during 1991 and 1992.

INTRODUCTION

Funding for adult education and literacy services through the Adult Education Act (AEA) has increased dramatically in recent years. Accompanying this increase in funding have been concerns about the effectiveness of adult basic education (ABE) and English-as-a-Second-Language (ESL) instructional services. Contributing to this situation is the absence of a body of empirically-based research findings upon which to design improved ABE and ESL programs.

The importance of improving ABE and ESL services has not gone unnoticed by policymakers. A number of statutory provisions of the 1991 National Literacy Act (NLA), which most recently reauthorized the AEA, are aimed at improving program services. Most specifically, the NLA requires states to adopt indicators of program quality and expands state evaluation requirements.

Fully implementing the NLA provisions requires states and local programs to collect data on participant characteristics, hours and types of services, and program outcomes. The advent of computerized management information systems has created new possibilities for analyzing data about programs and participants, for sharing data among programs serving the same populations, and for streamlining data collection processes.

A. Study Overview

The tremendous expansion of adult education and literacy programs has created an expanding need to collect and analyze data about them. This study examined the operation of state computerized management information systems (MISs) in adult education at both the state and local levels. The study collected information regarding:

- Types of data collected through the MISs
- Procedures for collecting data about local programs and transferring data from local programs to the states
- Training and technical assistance available to local adult education programs
- Perceptions of local adult education programs about the benefits of and barriers to operating MISs

At the state level, the study focused on the content and organization of computerized MISs. The emphasis at the local level was to understand how MISs operate in adult education programs and to examine the difficulties experienced by programs in implementing such systems.

Computerized MISs containing *individual* record data about adult education participants were of special interest in the study. Individual student record data are especially important in examining the effectiveness of adult education services. While analyses of aggregated data can be limited, individual data provide the flexibility to conduct analyses across a number of variables. Further, data in individual records on specific subgroups are easy to isolate and to share with other programs serving similar populations.

B. METHODOLOGY

Operating MISs in 27 states were identified by the Office of Vocational and Adult Education in the U.S. Department of Education, state directors of adult education, and a previous study by Pelavin Associates, Inc.[1] Throughout 1991 and 1992, adult education directors and, when appropriate, MIS specialists in these 27 states were interviewed by telephone regarding the organization and content of their MISs. Specifically:

- The type of data collected from local programs
- The methods and procedures used to collect data from local programs
- Collaborative data collection efforts
- State uses of data from MISs

Additionally, the directors of adult education in four of the states—Arkansas, Indiana, North Carolina, and Wisconsin—were asked to identify local adult education programs that represented a range of enrollment sizes, program types, length of experience with and degrees of success in implementing the MIS, past experience with computers, and urbanicity. These four states were selected because they represent the range of MIS experience of the states as a whole and their MISs maintained individual student record data.

A total of 21 local programs, with up to 4 years of experience with an operating MIS,[2] were identified in the 4 selected states. Telephone interviews with personnel in these programs sought to determine how local programs collect, utilize, and support their state's data information requirements and to obtain local perspectives on developing and implementing MISs. Each of the local programs was asked to provide information in the following areas:

- Basic operation of MISs at the local level
- Methods of determining accuracy of data collected

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[1] Fourteen states were identified through background research conducted by Pelavin Associates, Inc. in the development of a framework for evaluating state adult education programs for the U.S. Department of Education.

[2] Statewide implementation of Indiana's MIS is still in its pilot stage and most programs are not fully operational; however, six local programs were contacted to obtain their perspectives in the early phase of development.

- Types of technical assistance and training provided by the state
- Difficulties experienced in operating an MIS
- Relative strengths and weaknesses of MISs and recommendations for improvement

C. THE STATE PERSPECTIVE

The 27 states with computerized MISs in adult education were in various stages of operation at the time of this study. Some were operating on a statewide basis, some were in the early years of implementation, and some were in the pilot or field test stage. Data for these systems were generally collected by local programs and maintained on IBM-compatible computers, using an assortment of software, then transferred to states by modem or floppy disk. States maintained the data either in an aggregated format or in individual student records. Exhibit 1 (see Appendix A) presents an overview of MIS operations in the 27 states and the methods by which local programs collected and transferred data to states. A detailed description of each MIS system is presented in Appendix B.

Data collection by state MISs was strongly influenced by federal requirements. All states included data required for the federal adult education report, such as:

- Demographics: ethnicity, gender, age, status
- Education level: grade level, test scores
- Progress and achievement: educational, societal, economic
- Outcome: reasons for separation
- Class characteristics: location, number of participants and classes, number of full-time sites
- Staff: number working full- and part-time, number of volunteers
- Financial information

Some state MISs included additional data. For example, states that maintained individual student records often included the student's social security number as an identifier. Additional data elements collected by specific states included:

- Information about instructional method, percent of instructional time spent in specific skill areas, source of participant referral, and social service needs (Connecticut)

- Information about the type of class schedule (e.g., open-entry, open-exit, or fixed), attendance, and transportation needed (Illinois)
- Information on progress toward personal goals, referral source, contact hours, and placement, e.g., joined Army, entered JTPA program, returned to high school, joined an apprenticeship program (Kentucky)
- Information on progress toward personal goals, social services required, and reasons for separation (North Carolina)

Nineteen states reported that their MISs maintained individual student data at the state level (see Exhibit 2, Appendix A). Generally, these efforts were supported with federal funds, particularly through Section 353 (Special Projects) of the AEA. Of these 19 systems, 13 were operating on a statewide basis, 5 were in a pilot or field-test stage, and 1 was under development (Tennessee).

The 13 states with systems in operation on a statewide basis either directly operated the MIS or contracted with an outside consultant to develop the MIS and provide local programs with technical assistance. Arkansas, for example, contracted with Microdata to develop its statewide system using IBM-compatible computers and to transfer data from local programs to the state via floppy disks. Maryland's MIS was developed in-house and relies on scanner sheets with individual programs submitting data forms to counties, which then use scanners to record data and transfer the data to the state through floppy disks.

The five states with pilot programs were Alabama, Massachusetts, New York, Ohio, and Pennsylvania. Alabama was pilot testing the use of IBM-compatible computers with 20 local programs. Massachusetts was conducting a 16-month pilot test using IBM-compatible computers and a dBASE III software program with individualized student data from ten local adult education programs; start-up costs were estimated at more than $20,000, with ongoing costs for the system estimated to be between $15,000 and $40,000. New York's pilot project was being conducted with 10 local programs, Ohio's with four local adult education programs, and Pennsylvania's with ten participating local projects.

In 11 of the 19 MISs that maintained individual student record data at the state level, there was an effort to share data or collaborate on data collection with other programs serving populations with similar needs, such as the Jobs Opportunities and

Basic Skills Program (JOBS) and the Job Training Partnership Act (JTPA). Although the extent of collaboration varied from state to state, two distinct types of collaborative data collection efforts emerged.

The more frequent type involved sharing adult education data, either in hard copy or on floppy disk, with agencies responsible for JOBS and JTPA. These efforts were not always formalized and sometimes simply involved the sharing of reports (North Carolina and Virginia) or data tables (Arkansas, Missouri, Montana, New York) on a periodic basis.

The second type of collaboration involved a more formal relationship between adult education, JOBS, and JTPA. In three states—Kentucky, Ohio, and Wisconsin—data on all three programs were collected on identical forms. Kentucky included data from adult education, JOBS, and JTPA in the same database. Ohio's pilot MIS project was a joint effort of the Office of Adult Education and the Human Services Agency. The Wisconsin MIS was a joint effort of the offices for adult education, JTPA, and vocational education. In New Jersey, an interagency committee was considering the adoption of a standard intake form for adult education, JOBS, and JTPA.

D. THE LOCAL PERSPECTIVE

Twenty-one local programs in four states operating MISs with individual student record data provided descriptive information about the operation of such systems at the local level (see Exhibit 3, Appendix A).

Data collection by providers was primarily dictated by state and federal reporting requirements. Budget constraints at the state and local levels, as well as the time constraints of mostly part-time local staffs, made it difficult for providers to collect much information beyond these requirements, although each local program adapted its collection efforts and software in varying degrees to meet local needs.

Generally, information on students was recorded by hand at intake by teachers, instructional aides, or intake counselors and then keypunched into the computer by clerical/administrative staff or scanned electronically (primarily in North Carolina). Depending on size, location, and computer capacity, some programs (e.g., school district or community college system) sent intake forms to one central site where clerical or administrative staff input data. In a handful of programs, extra staff were hired to input and manage data, but in most, teachers and clerical staff simply added these data collection responsibilities to their current workloads.

Depending on their comfort level with computers, budget and information priorities, and relationship with other agencies, local providers began to utilize the sophisticated MIS capabilities to generate reports on specific segments of the adult education population—for example, participants in JTPA and JOBS, displaced workers, and ESL students—that were sent to social service agencies, local courts, state legislators, and other agencies serving the same adult population. Depending on the software used, administrators could sort information on attendance, demographics, test scores, activities by class site or teacher, and student outcomes such as obtaining employment or attending college. They could also print labels for student folders and mailing lists, send letters to students whose attendance had fallen off, and pull information from site locations to determine whether to continue a class.

E. Checking Data Accuracy

For the most part, local programs relied on teachers, aides, and intake counselors for student intake information. As information is generally input directly into MISs from intake forms, programs must make sure that teachers handle this process carefully and that they have a clear and consistent understanding of terminology (e.g., participant, reasons for leaving a program, student progress, and outcomes). In some cases, local program directors inspected samples of printouts; in others, teachers were given copies of reports for correction. Some administrators simply eyeballed printouts against original intake forms to see if the information looked correct. Some programs used several back-up checks. Most software packages have edits built into their systems so that the computer will point out errors if information is inconsistent or missing (e.g., errors will appear if a data field is empty or if information in two or more fields is contradictory).

Some local programs found that errors could be minimized by the use of scanners. Those who keypunched found that less mistakes were made when fewer staff were involved in data entry, but this put a burden on individuals to keep up with the workload. In an attempt to keep up-to-date information on students, providers generally required that new intake forms be filled out at least once a year or, in some instances, quarterly.

F. TECHNICAL ASSISTANCE

Each of the states provided a series of one- to three-day workshops for local program administrators and/or staff responsible for data entry and computer program maintenance. At the inception of an MIS, program personnel often met in a series of regional or state meetings. In addition, a contact person for ongoing questions from local programs was designated at the state office. At most of the sites, technical manuals were provided for ready reference. Arkansas, whose Student Record Keeping (STUREC) software system was developed by Microdata, contracted with the Michigan-based designer so that local programs could contact the firm directly through its 800 number and obtain program updates as needed; accessibility of the state office and Microdata staff was further enhanced through the statewide computer network. Indiana providers had access to the in-state designer of their STAR software by phone or through electronic mail. Local program staff also attended semi-annual user group meetings held statewide. For the most part, local programs were satisfied with the kinds and level of technical assistance they received from their states.

G. Problems with Implementing MISs at the Local Level

Program administrators and system analysts cited a variety of difficulties in setting up an MIS. While many of these difficulties were common across programs and states, some were influenced by factors such as type and size of program, staff comfort and familiarity with computers, use of computers before the MIS was implemented, and the nature of leadership exercised by the state. The concerns cited most frequently are highlighted below:

- In some programs, especially those where computers were not previously available, the limited computer literacy of data entry staff made it difficult to train them and to convince them of the importance and usefulness of computers. "It's important that teachers see the usefulness of computers," said one director, "but what's the use if it doesn't reflect reality?"
- Several program directors reported that the first year of implementation was "a real headache" for them and their staff. They had far too short a timetable to get programs up and running properly and felt it was hard to set up a system when it "got dumped in your lap." It appeared to be an even more difficult adjustment if staff were not solicited for input into the design of the MIS.
- Many programs did not have sufficient funding to hire additional staff for data entry, so current staff (including teachers in some cases) assumed data entry and the additional paperwork as part of their jobs, without additional compensation. One teacher noted, "I don't think this is the best use of a professional teacher's time," echoing the concern of many programs that administrative work directs their energies away from their most important function, instruction. One teacher noted, "If it's useful, if it's really going to make a difference, then I don't mind doing it...but I'm not sure how the information is being used."
- In some programs (particularly in North Carolina), the data collection process was

wrought with bugs and generated unreliable data. Computer crashes in at least one Arkansas program cost hours of work during the first year of implementation.

- Teachers and intake counselors often lacked a consistent or clear understanding of terminology and definitions on intake forms. In some cases, this was caused because staff were not instructed how to define terms (e.g., student progress, why students leave the program, or student status). Because of different interpretations of data collectors, "it is impossible to collect information accurately," said one director, adding that to ensure accuracy, "you need to have controls over the collection process."
- Some programs were required to input information more than once on the same student or to conduct updates quarterly. Wisconsin's client tracking system required that demographic and other data be input for each separate grant program in which a student participated. Initially, demographic information also had to be re-keyed onto the termination forms. Several programs found this process burdensome and unnecessarily duplicative.
- Some providers found software not flexible or manageable enough to meet local program needs. For example, one Arkansas administrator noted that it was difficult with the STUREC software to print a selected information screen; the whole file had to be printed. Others noted that software packages did not enable providers to determine how well a student was doing on competencies that were not measured on standardized tests (e.g., helping a child with homework, balancing a checkbook, voting).
- Access to computers was difficult in rural areas.

H. Benefits of MISs to Local Programs

While acknowledging the initial headaches inherent in setting up a new system in a field where information traditionally has been collected by hand, program staff cited a number of positives about implementing an MIS:

- Overall, program directors felt that information was much more accurate and comprehensive than when it was collected by hand.
- While the sheer volume of information to be collected could seem overwhelming and burdensome to staff, administrators marveled at how quickly and easily information could be generated by computer. One director said, "I used to spend a week each June pulling data together for the annual report; now I can pull it up on computer in a few minutes." Another concurred, saying, "There's no comparison to doing it manually." It was considered "a real time saver" in preparing and updating annual reports, and record keeping was more efficient. Despite the labor-intensive effort up front, noted another director, "electronic transmission will save time in the long run."
- Computerized MISs were seen as good management tools. Administrators could organize information better and plan and document programs based on accessible data on attendance, enrollment, and other areas. "If we can account for all students served, we will be able to see if ABE is effective," said one director.
- A program director in Arkansas felt that the MIS was easy to use and that with a three-day training workshop, a user's manual, and "average intelligence," program staff should be "off and running."
- For the most part, local programs found technical assistance accessible through telephone calls, electronic mail, meetings, and training

sessions with state computer specialists or software designers. One director remarked that the state office "gives me everything I want to know." Another director liked the fact that "the system gets updated continuously."

- With the implementation of an MIS statewide, local providers had the opportunity to contact and obtain encouragement from other programs that had encountered similar problems.

I. Recommendations to Other Local Programs

Based on their experiences in implementing an MIS at the local level, local providers suggested a variety of strategies that providers and policymakers at all levels should consider. Some of their suggestions are highlighted below:

- Hold meetings with all administrators, teachers, and clerical staff to obtain initial and ongoing input into the development of the MIS; make sure especially that individuals who use data collection forms are involved in designing them and that local needs are represented in the planning process. Instructional and clerical staff must see the importance and usefulness of data collection in order to be effective participants in the process.
- Pilot test the software and hardware during the first year so that all of the bugs can be worked out; valuable time may be lost when programs dive into a project without adequate preparation or confidence in the system.
- Provide technical assistance and training to local program administrators and data entry staff, since these are important for an MIS to succeed. Local program staff need adequate resources and support, including timely updates of software and training in the use of computers *before* the MIS is implemented.
- Stress the importance of accuracy in data entry; it is important to have a consistent interpretation of definitions and to realize that the way a piece of information is entered is the way that it must be searched in the future. "You get back what you put in," one director summarized.
- Conduct a random sample instead of collecting data on every student, especially in large programs. Because of the burden on part-time staff, this would be more cost effective and

probably as accurate as a complete accounting of the universe of students.

- Compensate teachers and other instructional staff who are used to collect and input data for the additional time they spend in this non-instructional capacity. A better alternative would be to hire additional secretarial/administrative staff to take up the time-consuming burden of data collection.
- Publish more user-friendly manuals for local program use.
- Use scannable forms rather than keypunching information directly to improve accuracy and eliminate human error. On-line registration would also minimize error.
- Design a system to meet the various reporting requirements. for programs that serve adults through several different federal programs—such as ABE, JTPA, JOBS, and vocational education. Software also must be customized to meet the varying needs of local programs (e.g., format, scheduling).

APPENDIX A: EXHIBITS

Exhibit 1: Computerized Management Information Systems 25

Exhibit 2: Management Information Systems Using Individualized Student Data at the State Level 29

State	Local Program System			Data Transfer Local—State		State System			Extent of MIS
	Hardware	Software	Record Format	Method	Record Format	Hardware	Software	Record Format	
Alabama	IBM-compatible personal computers	Not selected	Individual student records	Modem[1]	Individual student records	Not selected	Not selected	Individual student records	20 pilot projects
Arizona	IBM-compatible or MacIntosh microcomputers, scanners	Not selected	Individual student records	Floppy disk	Aggregated	Honeywell mainframe	Not selected	Aggregated	Six to eight large projects
Arkansas	IBM-compatible personal computers	STUREC	Individual student records	Floppy disk	Individual student records	Novell file server, Zenith 486 SX	STUREC	Individual student records	Computerized statewide
Connecticut	Assorted personal computers	Assorted	Individual student records	Modem[1]	Aggregated[2]	IBM AS400	dBASE III	Aggregated	1st year field test at selected sites; forms used statewide, computers *not* used statewide
District of Columbia	MacIntosh microcomputers lc to ci	Run-time version of Oracle	Individual student records	Modem	Initially aggregated	MacIntosh Quadra 700 or 900, Vax	Oracle	Initially aggregated	30 centers
Florida	District: mainframes, mini-and personal computers	Assorted	Individual student records	Electronic network	Individual student records	IBM 3090 mainframe	Electronic network developed in-house	Individual student records	All programs affiliated with districts use the district's computers
Hawaii	Assorted personal computers	Developed by contractor	Individual student records	Electronic network	Aggregated[3]	Personal computer	Developed by contractor	Aggregated[3]	Computerized statewide
Illinois	IBM-compatible personal computers	Developed by contractor using dBASE IV	Individual student records	Floppy disk and hard copy	Aggregated	IBM-compatible personal computers	Developed by contractor using dBASE IV	Aggregated	Computers used in all but six projects
Indiana	286 personal computers	Star, written in Paradox	Individual student records	Modem	Individual student records	Unix	Program written in Oracle	Individual student records	Computerized statewide
Kentucky	NCS 2200 scanners; are not part of MIS One project has compatible scanner		Individual student records	Scannable forms One project sends computer tape	Individual student records	NCS OPSCAN5, IBM-compatible personal computer, IBM mainframe	Developed in-house in SAS and COBOL	Individual student records	Scanner used at one site; forms used statewide; computers *not* used statewide

Exhibit 1: Computerized Management Information Systems (continued)

State	Local Program System			Data Transfer Local—State		State System			Extent of MIS
	Hardware	Software	Record Format	Method	Record Format	Hardware	Software	Record Format	
Maryland	NCS OPSCAN5, IBM-compatible PC in each county	Scanner programs developed in-house	Individual student records	Floppy disk	Individual student records	Hewlett-Packard mainframe Hewlett-Packard 256	Two programs written in-house	Individual student records	Forms used in all programs; scanners used in all counties
Massachusetts	IBM-compatible personal computers	dBASE III+	Individual student records	Floppy disk or modem	Linked individual student records	IBM-compatible 386 personal computer	dBASE III+	Individual student records	16-month field test, 10 sites
Michigan	IBM-compatible personal computers	STUREC DOS 3.3	Individual student records	Hard copy	Aggregated	Honeywell DPS 8000 mainframe	Programs written in-house in COBOL; vendor (Bull) software	Aggregated	60% local projects use system
Missouri	IBM or Apple personal computers	None required	Individual student records	Modem[1]	Individual student records	IBM personal computer	Software written in-house	Individual student records	Computerized statewide
Montana			Individual student records	Hard copy	Individual student records	IBM mainframe, IBM personal computer	Foxpro, Table Producing Language	Individual student records	Programs statewide use forms; computers *not* used statewide
New Jersey	Assorted	Assorted	Individual student records	Hard copy	Demographics: Individual student records Attendance and exit data: Aggregated	IBM-compatible personal computer	DataEase	Demographics: Individual student records Attendance and exit data: Aggregated	A few local programs use computers to print out data; all local programs submit data
New York[4]	Assorted personal computers, generally IBM-compatible or Apple	Assorted programs, including RECORDS, Student Manager, and ALLIES	Individual student records	Hard copy	Aggregated	IBM personal computer	D-Vise vendor program developed with state staff, Enable	Aggregated	Approximately 75 percent of students are enrolled in computerized programs
	Assorted personal computers	Assorted programs, including RECORDS, Student Manager, and in-house programs	Individual student records	Floppy disk	Individual student records	Same as above	Same as above	Individual student records	Pilot project, 10 programs

Exhibit 1: Computerized Management Information Systems (continued)

State	Local Program System			Data Transfer Local—State		State System			Extent of MIS
	Hardware	Software	Record Format	Method	Record Format	Hardware	Software	Record Format	
North Carolina	Prime microcomputers		Individual student records	Tape	Enrollment data: Individual student records Other data: Aggregated	Prime – IBM-compatible computers	"Prime Information," application software, software developed in-house	Enrollment data: Individual student records Other date: Aggregated	Computerized statewide
Ohio	None required	None required	Individual student records	Hard copy	Individual student records	Digital Vax	Program written in-house	Individual student records	Four projects participating in pilot test
Oregon	Assorted	Assorted	Individual student records	Hard copy	Aggregated by community college district	Apple personal computer	Program written in-house using Lotus 1-2-3	Aggregated	All community colleges use some computer system, but the systems vary
Pennsylvania[4]	IBM personal computers	Database program written by local program staff	Individual student records	Floppy disk	Individual student records	IBM 30-81 K Model, MUS/XA mainframe, IBM personal computer	IBM PC 3270 Emulation Program 121, SPSS-X, SPSS-PC+, Information Center One, DCF/Script Mainframe Desktop Publishing, Symphony, programs written in-house in SPSS-X	Individual student records	Ten programs participating
			Individual student records	Hard copy	Individual student records	Same as above	Same as above	Individual student records	Non-computerized system used statewide
Rhode Island[4]	IBM microcomputers	Program written in-house in PC-FOCUS	Individual student records	Hard copy	Aggregated	Epson Equity IBM-compatible microcomputer	Program written in-house in PC-FOCUS	Aggregated	Six programs participating, 2nd year of pilot
				Hard copy	Aggregated	Same as above	Same as above	Aggregated	Non-computerized system used statewide

State	Local Program System			Data Transfer Local—State		State System			Extent of MIS
	Hardware	Software	Record Format	Method	Record Format	Hardware	Software	Record Format	
Tennessee	Assorted personal computers, especially Apple, IBM, Tandy	Assorted software, including OSIRIS, THMS, TSS	Individual student records	Undetermined	Individual student records	IBM mainframe based on AMDAL computer and Motorola Delta series microcomputer	Program written in-house in SAS and Informix	Individual student records	All local programs will participate in the system when it is implemented
Utah	IBM PS 2 Model 80 or 65 file server	Netware (commercial software)	Individual student records	Hard copy	Aggregated	IBM PS 2 Series 80 or 65 computers	Programs written in-house in Excell, Lotus, and MS-DOS	Aggregated	Approximately half of the 45 programs use this MIS
Virginia	Scantrons (26 programs) IBM-compatible personal computers	MS DOS 3.3	Individual student records	Floppy disks (45 programs send hard copy forms to subcontractor to key)	Individual student records		Programs written in-house in Clipper, MS-DOS	Individual student records	26 of the 86 programs use scanners and computers at the local level; all local programs participate in the MIS, but not all are computerized
West Virginia			Individual student records	Hard copy	Individual student records	IBM mainframe	Programs written in-house in COBOL	Individual student records	Local programs use forms, but not computers
Wisconsin	Assorted computers including IBM AS400, IBM mainframes, Unisys	Assorted software, especially COBOL	Individual student records	Tape	Individual student records	IBM mainframe	Programs written in-house in COBOL, CICS, DB-2; FAS	Aggregated[3]	Computerized statewide

[1] Local programs send the vendor or data center scannable forms; the vendor or data center transfers data to the state office electronically.

[2] Local programs send the vendor individual student records; the vendor sends the state office aggregated data.

[3] The state office receives aggregated reports, but can access individual records.

[4] This state uses two systems to manage information.

State	Method of Identifying Records	Cost			Collaborative Data Collection Effort
		Startup	Ongoing	Funding Source	
Alabama	Social security number	Unavailable	Unavailable	State funds	MIS will be used by and accessible to all adult education programs, regardless of funding source.
Arkansas	Social security number	$150,000-$175,000 to date		Federal Section 353 funds	The Vocational/Technical Division of the Department of Education provides educational services to JOBS participants under contract with the Department of Human Services. Monthly enrollment reports are submitted to DHS in hard copy and on disk. DHS uses the data to pay the Division for extra service hours and to verify DHS data.
Florida	Social security number	Unavailable	Unavailable	State funds	No formal efforts.
Hawaii	Unavailable	$15,000	Unavailable	State and Federal funds	The Department of Human Services administers two sites funded by the Youth and Early Childhood Section.
Indiana	Social security number and unique identification number	Unavailable	Unavailable	Federal Adult Education funds	
Kentucky	Document number	Unavailable	$23,000+	Federal Section 310 funds	Data for ABE, JOBS, and JTPA programs are collected on identical forms, developed collaboratively, and loaded into the same database. Staff receive printouts of data for their own program.
Maryland	Social security number	$180,000	$3,000	State Literacy Works and Federal Section 353 funds	The Adult and Community Advisory Committee will discuss the issue in PY 1992.
Massachusetts	Student identification number	$20,000+	$15,000-$40,000	Unavailable	No current formal efforts.
Missouri	Unavailable	Unavailable	Unavailable	Federal funds	Hard copy data on JTPA and JOBS participants are given to the Adult Education Office.
Montana	Student identification number (potentially, social security number)	Unavailable	Unavailable	State funds	Data on JOBS participants receiving ABE services are included in the ABE MIS. Also, a state-level group is working towards using a common assessment instrument.
New Jersey	Unavailable	Approximately $4,550	Unavailable	State Basic Skills and GED and Federal Adult Education funds	Interagency committees will discuss a standard intake form.
New York (Pilot Program)	Student identification number (four characters from last name, date of birth, and ethnic code)	$5,500	Unavailable	Federal Adult Education Act funds	The Division of Continuing Education in the Department of Education administers the educational component of JOBS and JTPA and submits data on JOBS participants to the Department of Human Services.

Exhibit 2: Management Information Systems Using Individualized Student Data at the State Level (continued)

State	Method of Identifying Records	Cost			Collaborative Data Collection Effort
		Startup	Ongoing	Funding Source	
North Carolina	Social security number	$60,000+	Unavailable	Unavailable	Adult education, JOBS, and JTPA staff share annual reports. An effort to connect all adult education programs electronically is awaiting legislative approval.
Ohio	Social security, medical, and case numbers	Unavailable	Unavailable	Federal and state adult education funds	Pilot project is joint data collection effort between Office of Adult Education and Human Services Agency.
Pennsylvania	Unique serial number	Unavailable	Unavailable	State Adult Education and Federal 353 funds	ABE and JTPA staff share annual reports.
Tennessee (in development)	Social security or unique identification number	Unavailable	Unavailable	State income taxes	The Division of Adult and Community Education sends the Department of Human Service quarterly hard copy reports.
Virginia	Student identification or social security number	Unavailable	Unavailable	Unavailable	Hard copy reports are shared through the State Adult Literacy Commission.
West Virginia	Social security or student identification number	Unavailable	$3,000 (current MIS)	Unavailable	The Office of Adult Education administers JOBS and collects data on these participants. In addition, the adult education report is shared with the Department of Human Services and JTPA staff.
Wisconsin	Client identification number	Unavailable	Unavailable	Unavailable	The MIS is a joint effort of the state offices managing JTPA, Adult Education Act, state, and Perkins Vocational Act programs.

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ALABAMA

A. OVERVIEW

The Alabama Adult Basic Education Section has operated a partially computerized MIS. While some local programs have used computers, hardware and software systems have varied, and aggregated data have been sent to the state in hard copy reports.

A computerized MIS, to be operated through IBM, is being planned by a legislatively approved Council on Adult Education, composed of 25 state and local adult education providers and run by business and industry representatives. The MIS will contain comprehensive individual student files and histories and will be accessible to all adult education programs. A pilot test of the new system was scheduled to begin in October, 1992, and conclude in May, 1993. Depending on the results, the MIS may be implemented statewide in 1993. The location of the database was not determined at the time of this study. Contracting with a non-government data center, such as the Auburn University Techna Center, would require funding; if funds are not approved, the State Department of Education's data center will be used. Funding information was not available.

1. LOCAL PROGRAM LEVEL

Twenty adult education programs are to participate in the pilot project, and state staff anticipate that eventually all adult education providers, including community-based organizations and federal and state-funded programs, will participate in the computerized MIS.

Data will be maintained in individual student records on computers at the local level. Local programs will use IBM-compatible hardware and a common software system, which has not yet been selected.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Under the existing system, aggregate data are sent by local programs to the state on a monthly basis. When the computerized MIS is operational, individual student scannable forms will be transferred to the Auburn Techna Center or to the State Department of Education data center. If Techna Center funds are approved, data will be transmitted to the Adult Basic Education Section through a statewide computer network.

3. STATE LEVEL

Data will be collected in individual records and maintained on computers. If the Department of Education center is used, data will be maintained on the Adult Basic Education Section's Zena 386 personal computer, Honeywell mainframe, or on other unspecified computers.

B. DATA MANAGEMENT

1. DATA ELEMENTS

The pilot project will collect demographic and test score data. In addition to data required for the federal adult education report, the computerized MIS will gather information on types of instruments used to test students, their level, types of materials the students use, and programs (JTPA, community based, etc.). The instrument used to gather these data during the pilot project was developed for a national study. An instrument will be developed specifically for the Alabama MIS after the pilot project concludes.

2. UPDATING DATA

In the pilot project, updates on number of contact hours will be submitted monthly.

3. QUALITY CONTROL

None

4. TRAINING AND TECHNICAL ASSISTANCE

None

C. CHALLENGES

There has been some difficulty in locating a contractor to score the TABE and CASAS and to produce computerized individual education plans using the state developed curriculum.

D. DATA USES

The ABE section uses data to demonstrate the need for expanded adult education services. MIS data are compared to census data to show the percent of those needing services who actually receive them. By using social security numbers as record identifiers under the computerized MIS, staff will have access to prison, school, and tax records; they hope to be able to compare success in adult education with other outcomes, especially employment. This type of research will probably not be conducted until the pilot project is concluded.

Local programs have used information from the state annual report containing aggregate information by age and level for public relations purposes and in proposals for program expansion and funding for service clubs, business, and industry.

1. SHARING DATA

None

2. COLLABORATIVE DATA COLLECTION EFFORTS

The premise of the computerized MIS is that a statewide database of individual student adult education academic histories, accessible to all types of adult education programs, will eliminate duplication of effort. All centers and systems can tap into the database to track a student. There are no confidentiality problems in sharing data; a ruling by the state attorney allows these data to be shared for educational purposes.

As part of the MIS, a statewide curriculum guide with a common adult education assessment element was pilot-tested October 1, 1992. Data from this round of assessment was the first information in the computerized MIS.

ARIZONA

A. OVERVIEW

When the Arizona Office of Adult Education tested its newly computerized MIS in 1991, poorly designed scannable forms hindered the entire data collection process. Revisions were approved by the Section 353 committee in May, 1992, and requests for proposals (RFPs) to redesign the form and supply the requisite hardware and software were circulated in June. It was anticipated that the new system would be fully operational by 1993.

The MIS will be computerized in the largest 6 to 8 of the 52 adult education projects in Arizona, which include 85% of the 570 affiliated adult education programs. The projects that will not be computerized operate very few adult education programs, and it is not considered cost-efficient to invest in computers for them.

1. LOCAL PROGRAM LEVEL

Individualized records are maintained in hard copy at all local projects; projects selected for the computerized MIS will also maintain data on computers, probably IBM-compatible or Macintosh minicomputers and scanners. Projects with few programs and participants, such as those on Indian reservations or in farm country, will continue to use the existing hard-copy system only. All of the projects are supported by Adult Education Act money.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

The computerized local projects will record data on scannable forms and scan individual records into the computer. Data will be electronically transferred to the State Office of Adult Education immediately. In addition, projects will send disks of aggregated data monthly. The aggregated data will be loaded onto the office mainframe.

3. STATE LEVEL

Although data are maintained on local project computers in individual records, the state maintains them in aggregate form, using a Honeywell mainframe.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements include 127 cells of information needed for the federal and state adult education reports. The computerized MIS is moving away from grade-based data toward competency-based data.

2. UPDATING DATA

Although data are submitted monthly, new data do not overwrite old. Social security numbers, testing sites, and other factors are used to distinguish new data from data that needs to be updated.

3. QUALITY CONTROL

The scanner automatically rejects forms that are completed incorrectly. In addition, state staff spot check individual records for some projects to ensure that the aggregate data match individualized data.

4. TRAINING AND TECHNICAL ASSISTANCE

A communication data bank resource group in the Office of Adult Education provides technical assistance as needed. In addition, members of the Adult Education Staff Development Consortium, who meet at state-level training sessions approximately six times a year, work with individual programs to resolve problems.

C. CHALLENGES

The computerized MIS did not work as expected because the scanner could not read the forms well, and the forms are being redesigned. Because the processing of monthly project data is so time consuming, reporting periods may be changed to every quarter.

D. DATA USES

Electronically transmitted fiscal data allow the state office to track project finances on a daily basis, identify potential financial problems early, and make funding distribution decisions. The MIS also gathers data needed to prepare federal and state adult education reports and to build a demographic database of adult education students. A longitudinal study to ascertain how programs meet client needs has been built into the new MIS; 250 clients of a random sample are to be interviewed personally when they exit

from an adult education program and through a mail survey at intervals of 6, 12, and 18 months thereafter.

State-level data are disseminated to local projects for evaluation, funding, and program development.

7. DATA SHARING

None

8. COLLABORATIVE DATA COLLECTION EFFORTS

The Office of Adult Education has interagency service agreements with the Department of Economic Security to provide educational services for JOBS, JTPA, institutionalized, homeless, correctional facility, and AFDC adult education participants. Approximately $1.4 million has been appropriated by the legislature to the Office of Adult Education to provide data about the JOBS, JTPA, and other types of clients served through the adult education programs. Data are generally shared in hard copy reports.

ARKANSAS

A. OVERVIEW

Until 1990, Arkansas used a manual system to collect, transfer, and process data on adult education students. A computerized data collection system, piloted and debugged over a two-year period, is now fully operational at the state and local levels. The Arkansas MIS uses the STUREC for data input at the local level and data processing at the state level. STUREC, a product of Microdata, was not developed exclusively for Arkansas, but was customized for its MIS.

Between $150,000 and $175,000 has been spent on the MIS, financed with Section 353 federal monies. The original software package cost approximately $53,000. An additional $100,000–$125,000 in state funds was spent on computers for every district and for training, technical assistance, and operating costs.

1. LOCAL PROGRAM LEVEL

All full-time (53) and part-time (9) adult education programs that receive funds from the state, including federally funded programs, participate in the MIS, and volunteer literacy agencies will be added in 1993. Data on individual students are entered by local staff into IBM-compatible personal computers in a standardized format using STUREC. Individual records are kept for two years so that the records on students who re-enroll after a summer hiatus can be reactivated rather than input twice. Local program staff maintain intake data in hard copy, but most information is kept on the computer.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local programs send floppy disks containing all individual student record data to the state Vocational Technical Education Division each month. The data includes previously submitted records that have been changed (e.g., students who have advanced to the next class level), previously submitted records that have not been changed, and records of new students. A copy of the information is retained locally.

3. STATE LEVEL

Data are collected and maintained by the state in individual student files. Division staff copy the data submitted by local programs into the mainframe using STUREC. The software

incorporates new and updated records with existing records and recalculates aggregate data for monthly reports. The Division uses a Novell Server and a Zenith 486 SX in conjunction with the STUREC software to process data. After integrating the data, staff use a STUREC command to clean the data.

While monthly program-specific reports are produced at the local level, annual aggregated federal and state reports are produced at the state level. Data can be aggregated within programs or by any number of data elements.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Demographic data are collected on students when they enter an adult education program. Data elements include name, address, social security number, grade level, county, funding source, practice test and GED scores, achievement data, and advancement. Because Arkansas' adult education system is GED driven, transcript and academic credit history are not as significant as test scores and are not collected; however, teacher contact hours are tracked. All projects use the same software and therefore can only enter the same types of data elements.

2. UPDATING DATA

Updates of individual student records are made at the local program level. Any changes in existing records, along with new records and unchanged existing records, are copied onto disks and sent to the Division once a month. When the disks are copied onto the Adult Education mainframe, new information overwrites old information.

3. QUALITY CONTROL

To maintain the quality of the data, the Division prints out an Effective and Efficient (E&E) Report for each program every spring. This report, which summarizes data submitted by the program, is sent to the local program for approval.

4. TRAINING AND TECHNICAL ASSISTANCE

Local staff receive training and technical assistance to ensure they are using the system and defining the data elements consistently. Initially, Microdata provided approximately two days of in-service training to all programs. A series of in-service workshops for directors and data input staff was held in Little Rock, and regional in-service reviews reinforced the skills learned. A Division staff member and a local program staff member continue

to provide in-service each fall for new data operators. In addition, guidelines describing steps of the MIS were given to each program.

A staff member from the Division provides technical assistance at program sites and over the telephone. A local program staff member who enjoys working with computers also has made several site visits to assist other programs. In addition, Microdata is under contract to provide continuing technical assistance over the telephone. Microdata staff came to Arkansas to help get the program on line.

C. CHALLENGES

Arkansas has had several problems with the MIS. The software, as initially installed, did not collect some important data elements. Microdata revised the software to correct this problem. A pilot test would have provided an opportunity to debug the software, but the Division did not want to wait an extra year to implement the full-scale MIS. The Division is now satisfied with the software.

Initially, some local program staff were reluctant to invest the time in converting to a computerized system. However, local staff have now bought into the system.

D. DATA USES

The main benefit of the new MIS is the tremendous amount of time saved in entering and compiling data. Staff do not need to devote time to writing reports and answering information requests. One employee previously spent 20 days each month entering data that can now be copied in a few minutes. Responses to legislative requests for information can be produced quickly.

The MIS produces a number of reports much more quickly than could be written manually and expands the potential to sort data by categories. These reports include the federal annual adult education report, printed monthly by each local program and annually in aggregate, the annual Governor's Commission on Literacy reports, and Project Success reports for each local program. The MIS allows reports to be aggregated by type of program (e.g., adult education or workplace literacy), by total participants or participants attending at least 12 hours.

Local programs can print their own reports, letters, rosters, and similar information. The only report that local programs cannot print is the report for the Governor's Literacy Commission; this report is not distributed to local programs, although the data are made public and the report is available upon request.

1. SHARING DATA

Data on students in Project Success, the Arkansas JOBS program, are conveyed to the Department of Human Services (DHS) in monthly hard copy enrollment reports aggregated by LEA and individual records on database file disks. The Vocational Technical Education Division submits an individualized database file disk for DHS to integrate with its system and check the eligibility of adults served through Division adult education programs. DHS pays the Division on a monthly basis above a baseline for contract hours and verifies accuracy of the data. DHS shares similar data with the Division.

2. COLLABORATIVE DATA COLLECTION EFFORTS

Although the Arkansas JOBS program shares data with the Division, the program is not on line with the Division's adult education programs. Both the Division and DHS hope to go on line together, but there have been no efforts to do so in the near future. No current efforts are underway for coordination with JTPA, although the Division works closely with the program in other areas. No substantial barriers to sharing information have been identified.

CONNECTICUT

A. OVERVIEW

The Connecticut ABE/ESL management information system was established through a contract with Computer Associates International, which created the state's GED MIS in 1985. The ABE/ESL MIS began a statewide field test in 1991 and was not fully operational at the time of this study. All AEA-funded programs are included in the field test, and all local service providers receiving state or federal adult education funding report data. The 19 LVA affiliates report to the Bureau of Adult Education because they receive state funding. The Chief of the Bureau of Adult Education hopes to include external credit and GED programs.

The ongoing contract for the GED MIS costs $300,000; the enhancement for ABE/ESL costs $56,000. Updating of scannable forms to accommodate new ABE reporting requirements and to include key elements for JTPA, JOBS, and AEA programs will cost an additional $35,000.

1. LOCAL PROGRAM LEVEL

Prior to 1991, class forms were completed by each teacher, and data were aggregated by local programs and sent to the Bureau of Adult Education in a year-end report. Some local programs maintained records on computers and some in hard copy. Under the new MIS, a scannable form is completed for each student at enrollment. Local programs send the forms to the vendor (Computer Associates International), which is responsible for scheduling testing, contacting students, developing class rosters, scoring GED sheets, and issuing diplomas. The system developed from card to data entry. Special codes identifying the site and class are on the form so each record can be tagged by these characteristics.

Programs don't need hardware with the scannable forms (although lack of hardware does limit data manipulation), but over half of the local programs have some computer capability, ranging from IBM-compatible to Macintosh. Eventually, there should be a computer and modem in each district, and programs will be able to enter student data directly into the computer, send it via modem to the vendor, and receive immediate feedback.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

The vendor collects data from local programs by individualized cases; data can then be aggregated by program, region, and state. The American Council on Education and Connecticut State Board of Education reports require information aggregated by different categories, so there is flexibility in aggregation. The vendor returns the scannable forms to the programs.

3. STATE LEVEL

The Bureau of Adult Education is connected to the vendor's computers and has access to both aggregated and individualized data for adult basic education participants, though it cannot input. It can input and obtain aggregated and individualized data for GED participants, and eventually the same will be true for ABE/ESL participants. State staff use dBASE III on an IBM AS400 to process data.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements on the form include reason for enrollment, entry status, referral source, highest grade completed, diploma issued, racial/ethnic group, continuing student or changing status, gender, pre- and post-survey, placement, exit level and status, reason for discontinuation, hours between reporting periods and between pre- and post-tests, and attendance. Additional data elements on JOBS and JTPA participants will be incorporated.

2. UPDATING DATA

Updates to student records (e.g., changing classes) are entered on scannable forms and sent to the vendor. The vendor updates records and submits updated ABE reports to the Bureau of Adult Education each semester. JOBS and JTPA reports are to be submitted quarterly. When the system is fully operational, the Bureau will be able to read updates as soon as the vendor enters them.

3. QUALITY CONTROL

To ensure high quality data, staff are trained to complete the standardized scannable forms correctly. The vendor has a series of indicators that must be completed on each form, and incomplete reports are returned to the program. On the secondary level, an indicator program flags records if an item is wrong (e.g., two different social security numbers are entered for one person).

4. TRAINING AND TECHNICAL ASSISTANCE

State staff provided two one-day training sessions for Connecticut Adult Performance Program (CAPP) facilitators and adult education staff trainers, and vendor staff were there to answer questions. Facilitators were expected to train local program staff. In addition, technical assistance is provided over the telephone on an as-needed basis.

C. CHALLENGES

Some program officers were slow to accept the new system, and some did not like the new scannable form. Bureau staff met with local program staff to redevelop the form and to help them feel more involved in the project. Another problem involved state budget constraints, and the MIS project was constantly behind schedule as a result.

D. DATA USES

Data are used to complete reports for the American Council on Education, Connecticut State Board of Education, AEA, and eventually JTPA and JOBS. They are also used to make decisions about funding. For example, an increase in the numbers of ESL students suggested a need to recruit more ESL teachers and provide more ESL training and support to current ABE teachers. Data are shared with the State Board of Education to bolster funding requests.

1. SHARING DATA

Specific data are shared in response to requests. The annual report is generally available. Data are shared informally with JOBS and JTPA, and these programs share their data with the Bureau.

2. COLLABORATIVE DATA COLLECTION EFFORTS

An interagency group composed of the Departments of Labor (Employment and Training Commission), Income Maintenance (state and local offices), and Education (ABE, JTPA) began when adult education switched to the competency-based initiative (CAPP). The new MIS, which will include JOBS and JTPA programs eventually, was spearheaded by the Bureau but solicited input from the interagency group.

When the system becomes fully operational, the Bureau will want JOBS and JTPA to finance the modifications they need. JOBS and JTPA tried to develop their own MISs, but the systems did not work well.

3. LOCAL PROGRAM USES OF DATA

Every school district providing adult education receives an aggregated state profile each year, including five-year enrollment by district. The Bureau does not track how those data are used.

DISTRICT OF COLUMBIA

A. OVERVIEW

At the time of this study, the Adult, Continuing, and Community Education Office of the District of Columbia anticipated joining the school district's computerized MIS, beginning with major adult education centers (i.e., centers offering both day and evening classes) in January, 1993. Centers would send data via modem from their personal computers to a larger personal computer at an undetermined location. Local processing would occur there, and data would then be sent via modem to the school district's mainframe. Initially, data would be collected in aggregate; within one or two years, data should be collected in individual records. Information on cost was unavailable.

1. LOCAL PROGRAM LEVEL

Approximately 30 local adult education centers—including community-based organizations, workplace-literacy programs, and programs funded through a mix of AEA, Perkins, JTPA, and District monies—will participate in the MIS. Local programs will maintain individual student records on Macintosh microcomputers, using run-time versions of Oracle. The program will be developed in-house to allow local centers to maintain student records on computer and to transmit data.

2. TRANSFER FROM LOCAL PROGRAMS

Data will be transferred via modem from the local programs to a central computer and from the central computer to the school district mainframe. Initially, aggregate data will be transmitted, although individual student records eventually will be sent. Software is being developed to permit an initial data transfer followed by monthly or weekly updates.

3. DISTRICT LEVEL

Data will be maintained in aggregate at the district level. Eventually, the MIS will have the capacity to collect and maintain data in individual student records. Oracle will be used on a Macintosh Quadra 700 or 900 file server housed in an adult education program. Oracle will also be used on the school district's VAX mainframe to upload and match records.

B. DATA MANAGEMENT

1. DATA ELEMENTS

In addition to data required for the federal adult education report, data on achievement and progress within classes (assessment scores upon entry, growth after 100 hours) and some demographic information (name, class and school, previous school, and possibly social security number) will be collected. Built-in quality checks are included in the school district's MIS.

2. UPDATING DATA

None

3. QUALITY CONTROL

None

4. TRAINING AND TECHNICAL ASSISTANCE

Although details were unavailable, training for local program staff will be provided by the school district Data Information Resource Management staff and the Adult, Continuing and Community Education Office.

C. CHALLENGES

There have been no major impediments to establishing this MIS.

D. DATA USES

Data are used to determine whether the types of adult education programs offered are meeting the needs of clients. Achievement data are used in city-wide adult education planning and by local programs as part of the planning process.

1. SHARING DATA

The Adult, Continuing, and Community Education Office administers the educational component of JTPA and submits monthly reports on the programs. The Office is collaborating with the Employment Security Office to coordinate individual and employer educational needs. District staff would like to collaborate on data collection; however, there are no current efforts to do so.

2. COLLABORATIVE DATA COLLECTION EFFORTS

None.

FLORIDA

A. OVERVIEW

In response to the state legislature, Florida developed an automated management information system for its K–12 education system several years ago; subsequently, vocational education and adult education, which operate through school systems, were added.

Although the MIS has the capability to collect data, the system is not completely operational and does not collect some of the data elements the Bureau of Adult and Community Education would like. In addition, state four-year and community colleges do not yet have mainframe terminals, and the Bureau is not yet fully equipped with personal computers. The MIS is still a few years away from getting all data via reports; Bureau staff may never be able to collect all social data, such as whether education influences voting behavior.

1. LOCAL PROGRAM LEVEL

All of Florida's 67 school districts and 28 community colleges that receive federal AEA funds must submit information on how they use their state, federal, and local funding. The districts use the state's computerized MIS to report data, but the community colleges and libraries do not. Community colleges are developing their own MIS database, portions of which will cover the elements for the annual federal report.

Adult Education Programs. Local adult education programs maintain data in individual student records, either in hard copy or on computer. While some programs have computers, there is no universal computer system or software for local adult education programs.

School Districts. Each school district has its own computer system including, at minimum, a terminal connected to the state MIS mainframe; in addition, some individual schools have their own systems (mainframes and minis are the most common). Some small school districts operate a single mainframe through a consortium. In addition, there is no single source of software. A third to a half of the school districts use commercially produced software packages (including TERMS, which runs on mainframes and minis), and the rest have developed their own systems. Districts use unique code numbers to connect to the Florida

Information Resource Network (FIRN), the statewide electronic education network.

Colleges. The colleges have independent computer systems connected to the Northwest Regional Database via modem, but they are not integrated into the state MIS.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Adult education programs operated by local school districts submit reports to their school districts, which then transmit data through on-site terminals to the state MIS mainframe. The transfer from program to district may occur daily for larger programs but must occur at least once a month; the transfer from district to state occurs five times per year. Community colleges and literacy organizations submit data directly to the state office, the former on tape and the latter in hard copy.

From Local Programs to School Districts. Local schools and adult education programs convey data to school district offices through FIRN or on floppy disks if they have the computer capability; otherwise, data are transferred in hard copy. Generally, K–12 schools are connected electronically to school district offices; adult education programs are more likely to be housed in church basements or other sites that are not hard-wired to a district office, necessitating data transfer on floppy disk.

From School Districts to State. Each school district maintains a computerized student record system that includes data needed for state and federal reports. School districts retain records by individual so that students can be tracked by social security number and Florida student ID number. School districts are hard-wired to the state education MIS mainframe and communicate with the mainframe through FIRN. Using this electronic network, the state Department of Education surveys the districts on all educational programs six times per year. The districts extract the data requested, put them in record format, and send them electronically through FIRN in batch files of individual records to the state MIS mainframe. Data concerning adult education programs are collected in five of the six surveys.

Prior to the MIS, student information was aggregated by level (i.e., 0–5.0, 6–8.9, 9–12; ABE, English as a Second or Other Language (ESOL) basic, intermediate, or advanced) on district mainframes and submitted in hard copy to the state Division of Public Schools.

Transfer from Community College to State. In general, community colleges send data tapes, which are then aggregated, to the state .

3. STATE LEVEL

The school district computer system is hard-wired to the state education mainframe, an IBM 3090. Data from local programs are placed into the state database, called DB-2, using programs written in COBOL especially for this purpose. The Bureau of Adult and Community Education is buying personal computers for state staff that will be interconnected using the Northwest Regional Database (the database of educational information) in Tallahassee through the telephone lines.

Owned by the Department of Education, FIRN connects public post-secondary schools, school districts, and the state MIS. It is used to collect data for state reporting and to disseminate instructional techniques. Local Area Network (LAN) connects all hardware for 28 community colleges, all state colleges and universities, and the 67 school districts.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Federal adult education annual performance report information—demographics such as age, gender, and race; educational information such as grade level; accomplishments such as advancing grade levels, completing high school education, taking the GED Tests; and other outcomes such as leaving the program and reasons for leaving or removal from public assistance—are extracted from the larger data element fields in the MIS database.

Societal outcome data (e.g., whether a participant registers to vote or obtains employment) cannot be collected through the computerized MIS. These data are sent to the state in separate hard copy reports.

2. UPDATING DATA

None.

3. QUALITY CONTROL

None.

4. TRAINING AND TECHNICAL ASSISTANCE

The Bureau of Adult and Community Education conducts annual workshops to train local staff in needed data, how to define data items and implement state requirements for specific items. MIS staff discuss hardware and software at these training sessions and continue to provide technical assistance. The importance of following consistent definitions of data elements is stressed in training.

C. CHALLENGES

Some programs have been late in submitting data for reports. When that happens, the Bureau writes to the program to request the necessary data immediately.

Requests to add data elements not previously gathered are processed through the Division of Public Schools MIS, but it takes several years to get an item approved, set up data collection procedures, and collect the information from the districts.

D. DATA USES

Data about vocational and adult education—especially data needed for the annual report—are extracted from DB-2 and submitted through FIRN to the Bureau of Adult and Community Education data processing group in September. The Bureau goes through the files of records and produces reports. Coordination between the state MIS and the Bureau was under discussion at the time of this study, as there was some ambiguity about who should process adult education records.

State auditors look at educational data as they are submitted and use the information to calculate state funding distributions across community colleges and school districts based on full time equivalent (FTE) students served. The Bureau of Adult and Community Education generally accesses the data once a year to develop the annual federal adult education performance report, because its federal funding is calculated from census data and the previous year's FTEs. To access data at any other time, the Bureau sends a written request to the Florida Education and Training Placement Information Program (FETPIP), a high-level state information unit funded by the state legislature under the Associate Commissioner of Education, which processes data about K–12, vocational, and adult education.

All data, including fiscal information, are used to complete federal reports, plan adult education across the state, plan evaluations, inform technical assistance by identifying which

counties need help in which areas, and report to the legislature on adult education accomplishments. The MIS has improved the accuracy of this data. Using computers in the MIS and social security numbers to track students has eliminated duplication.

A multi-year study directed by the Center for Needs Assessment and Planning (CNAP) at Florida State University will examine adult education student outcomes using data available through the education MIS and FETPIP, which has access to data from the Department of Labor, colleges, the military, and other sources. CNAP will follow former adult education students from 16 school districts, a prison system, and community colleges, using social security numbers to determine what happens to them, including their employment and education status, after they leave educational programs. While FETPIP has extracted data on vocational education students and analyzed it for some time, it does not have the staff for this study, and this will be the first time such a study has been done for adult education.

1. SHARING DATA

The Bureau of Adult and Community Education is in the Division of Vocational, Adult, and Community Education. JTPA is housed in another part of the Division, Vocational Education. Although local adult education programs in many areas of the state work with JTPA students, the Bureau does not collect data about JTPA students. Vocational Education collects this information and submits it to the federal office, using much the same type of MIS as the Bureau uses for adult education data.

2. COLLABORATIVE DATA COLLECTION EFFORTS

None.

HAWAII

A. OVERVIEW

At the time of this study, the Hawaii adult education MIS was in its fourth year of development and first year of operation as part of a network connecting the Youth and Early Childhood Section of the Department of Education with regional community schools through which adult education programs are offered. The MIS was developed by a private contractor. Adult education programs enter data on students locally, but state staff can retrieve the data at their own terminals. Local programs send aggregated data reports to the state office quarterly, or as needed, through the network. The cost to implement the MIS network was $15,000 in state and federal funds.

1. LOCAL PROGRAM LEVEL

Eleven regional community schools that use federal funding to provide adult education participate in the MIS. They maintain individualized registration data on a variety of personal computers using software developed by a private contractor. Literacy organizations, which are not part of the MIS, report data to the Governor's Council on Literacy.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

The community schools send quarterly reports to the state Youth and Early Childhood Section through the MIS computer network. State staff can retrieve data at any point by calling up specific records on the Section's terminal.

3. STATE LEVEL

At the state level, data are maintained in aggregate. However, state staff have access to individual records and can do analyses by a number of variables. The Youth and Early Childhood Section, like the regional community schools, uses network software developed by a private contractor on a personal computer.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Hawaii collects only the data elements required for the federal report to minimize the reporting burden on local programs. Individual tests and class data are not maintained on the computer. The Youth and Early Childhood Section plans on

implementing CASAS statewide, and at that point, assessment information will be maintained on the MIS.

2. UPDATING DATA

None.

3. QUALITY CONTROL

None.

4. TRAINING AND TECHNICAL ASSISTANCE

The contractor who designed the software provides two to three four-hour sessions across the state each year to orient secretaries to the system. The contractor also is available for technical assistance through the network's bulletin board.

C. CHALLENGES

There have been no major challenges to date.

D. DATA USES

MIS data are used for preparing federal reports.

1. SHARING DATA

The Youth and Early Childhood Section works closely with JOBS and the Governor's Council of Literacy. For example, on the basis of a master plan for JOBS developed by the Department of Human Services, two JOBS sites were funded through adult basic education but administered by the Department of Human Services. Data are submitted to the Department of Human Services and a copy is sent to the Youth and Early Childhood Section. Information on numbers of adult basic education participants are shared informally with the Governor's Council of Literacy and the Department of Human Services. There are few ties with JTPA, which is housed in the Department of Labor.

2. COLLABORATIVE DATA COLLECTION EFFORTS

None.

ILLINOIS

A. OVERVIEW

The Illinois Adult Education Student Information System (AESIS) began as a pilot project in one of the state's five adult education regions, and programs across the state joined the system as funds became available. Federal 353 money is utilized to pay approximately $55,000 for an annual contract with the programmer who developed AESIS; this annual grant covers salary, benefits, and expenses such as travel, software, and telephone. Start-up hardware costs were originally $6,000 per program but have been reduced to $2,200. Programs were instructed to use federal, state, or public assistance funds to purchase the hardware.

1. LOCAL PROGRAM LEVEL

All but six of the school districts and community colleges that offer adult education programs participate in the computerized MIS. One non-participating programs is Chicago City College, which is too large; others are too small to make the approach cost-efficient. One program (in Springfield) was already connected to the Office's mainframe.

Local programs record intake data on paper and input data into their IBM-compatible computers using AESIS, which uses dBASE IV. A worksheet identical to the computer data input screen is recommended but not required for program staff to use in the intake process.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local programs send aggregated student data on disk and in hard copy to the Adult, Vocational/Technical Education Office once a year, in July.

3. STATE LEVEL

Data at the state level are maintained on IBM-compatible computers in aggregate form using AESIS. Hard copies from the individual programs are kept on file. The contracted programmer compiles adult education report data onto disk and printout, and these data are used to complete the federal adult education report.

B. DATA MANAGEMENT

1. DATA ELEMENTS

In addition to data required for the federal adult education report, local programs collect attendance and enrollment hours for a state report. A senior consultant in the Adult, Vocational/Technical Education Office and the contracted programmer help programs make the transition from the old to the new year, including renaming old files and transferring records of continuing students into current files.

2. UPDATING DATA

None.

3. QUALITY CONTROL

Before producing any reports, local staff run an edit program to identify incorrect data. To avoid duplicate records, the computer is programmed to check each new record as it is entered for name and funding source; if the name and funding source match previous records, the new record is rejected.

4. TRAINING AND TECHNICAL ASSISTANCE

The senior consultant and the contracted programmer install AESIS at local programs and provide initial training. They sponsor a workshop for new staff each year and an advanced dBASE class most years. In addition, state staff provide on-site technical assistance.

C. CHALLENGES

There have been no problems with the MIS; it is popular in the state.

D. DATA USES

Local programs submit a number of reports, including information for the federal adult education report, to the Adult Vocational/Technical Education Office. They submit information on public aid recipients in hard copy and on disk quarterly; staff in the state office match student identification numbers to determine how many students have had reductions in or removal from public aid. A profile report on mandated testing is submitted on paper and disk twice a year. In addition, adult education in Illinois is funded through reimbursements for reported attendance, and local programs submit an adult education enrollment report in hard copy twice a year.

1. SHARING DATA

The Adult Vocational/Technical Education Office recently began working on a research project with the Illinois Department of Employment Security to develop an employment tracking system. Office staff select representative adult education programs and submit social security numbers of past participants to the Department. Department staff track changes in earnings, especially increases following participation in an adult education program.

2. COLLABORATIVE DATA COLLECTION EFFORTS

None.

INDIANA

A. OVERVIEW

The Education Information Division of the Indiana Department of Education is developing an adult education computerized MIS. School corporations, which operate state and federally funded adult education programs, already maintain fiscal records and other data on computers and submit these data to the Division of Adult Education via modem. The new MIS will use Student Time and Attendance Reporting (STAR) software recently developed for local programs. Although specific figures were unavailable, the total cost for this MIS will be reasonably low; most local programs have the necessary computer equipment, and the software grew out of a local project. The Division of Adult Education provides for the requisite hardware and software with AEA funds, and in some cases, programs will use local funds.

1. LOCAL PROGRAM LEVEL

Three-quarters of Indiana's state and federally funded adult education programs operated by school boards have committed to purchasing the STAR software, and the remaining 25% will modify existing systems to report data in an acceptable format. The new MIS is scheduled to be in place by July 1, 1993; two programs will pilot the project, with other programs coming on board as they are ready.

Local programs will maintain data in individual records on their computers. STAR, written in Paradox, requires a 286 and DOS 3.0 to operate.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Individual student records will be transmitted by modem directly to the state's Educational Information Division approximately six times a year, corresponding to the beginning and end of the summer/fall and spring terms and the federal reporting quarters.

3. STATE LEVEL

Data will be maintained in individual student files in a state-level database. The Education Information System uses a Unix computer. The database for adult education data will be written in Oracle.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements include those required for the federal adult education report and additional elements required for state reports, such as average number of contact hours, numbers of students registering and enrolling, and credits earned through non-school experience and exams. The state office is most concerned with numbers of students and dollar amounts; it will collect only these types of data from the local student records.

2. UPDATING DATA

Student records will be tracked with unique identification numbers and social security numbers. Changes will be made at the local level; new information will overwrite old information at the state level throughout the year. STAR includes a feature that allows local program staff to transfer a continuing student's file from one year to the next. At the state level, however, each year's database will be maintained separately.

3. QUALITY CONTROL

None.

4. TRAINING AND TECHNICAL ASSISTANCE

The developer of STAR and a colleague held training sessions across the state for local program directors and data entry staff. They will continue to provide training and technical assistance. In addition, staff from the Division of Adult Education and the Supervisor of Adult Secondary Credit will offer training and technical assistance.

C. CHALLENGES

Involving non-profit organizations in the MIS may be problematic. Few have the computer capacity to participate, and the Division of Adult Education is hesitant to fund computers for the programs.

D. DATA USES

Data submitted by local programs will be used to generate attendance reports and dollar totals spent by local programs for reimbursement. In the future, state funding will probably be based on student enrollment levels; because enrollment will be calculated from programs' individual student records, enrollment data will be more reliable than in the past.

The Division of Adult Education will make state-level data available to local programs so they can compare their progress with that of other programs.

1. SHARING DATA

None.

2. COLLABORATIVE DATA COLLECTION EFFORTS

The Division of Adult Education has considered collaboration with JOBS and JTPA in areas such as common program indicators and co-location of staff, but not in data collection. The proposed MIS is geared toward adult education reporting requirements that are not relevant to other programs. Because different federally funded programs use different definitions and reporting procedures, a collaborative data collection effort is not deemed practical.

KENTUCKY

A. OVERVIEW

While Kentucky's MIS has been computerized for several years at the state level, it has not been comprehensively computerized at the local level. The system has been continuously refined, however, and data reliability has improved dramatically since 1988. Depending upon funding, the Office of Adult Education Services hopes that local districts will have scanners and send data to the state on disk by 1993.

The MIS was funded with 310 money, but initial investment figures were unavailable. An additional $11,000 is being spent on writing programs, $7,000 on forms, $5,000 for a scanner, and an unknown amount for staff time.

1. LOCAL PROGRAM LEVEL

All programs administered through the Kentucky Office of Adult Education Services, including JOBS and JTPA, participate in the MIS. Local adult education providers complete a scannable form for each student, which they send to the Office of Adult Education Services. The Office returns the information in the form of rosters, which become the records maintained at the local level.

One local program, Jefferson County, has its own compatible scanner; other local programs with scanners have lower grade NCS 2200s that cannot be integrated into the state MIS system.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Small adult education programs send data to the state office bimonthly; large programs send data monthly. They receive rosters from the Office of Adult Education Services monthly. The Office tracks program data and contacts programs that neglect to send their forms. Jefferson County scans its own forms and sends a computer tape to the Office.

3. STATE LEVEL

The forms submitted by local programs are scanned in the Office of Adult Education Services using its NCS OPSCAN 5 and personal computer and a program developed especially for this project by staff in the Workforce Development Cabinet. Missing or inconsistent data are identified at this time and sheets with errors are sent back to providers for correction. The Office sends the

computerized data on floppy disk to the state Department of Information Services (DIS), which downloads the data onto an IBM mainframe that uses customized programs written in SAS and COBOL and generates reports for Adult Education Services. All reports, whether monthly, federal, or special, are returned from DIS in hard copy only.

The data is collected by individual cases and can be aggregated by any element (such as level or type of class) or by teacher, program, or district, or the state as a whole. DIS cannot pull individual records once they have been scanned and input in the mainframe, but adult education staff can locate individuals in reports. Staff in the Cabinet are available for the adult education MIS, but mainframe work is done by DIS staff.

The Kentucky Literacy Commission (KLC) uses the same scannable forms as the Office of Adult Education Services, but scans them separately; KLC data are then input into the same mainframe and the data for all programs, including KLC programs, are ultimately incorporated in one record.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements include those required by AEA, JTPA, JOBS, and state program reports. Providers complete a perforated scannable form for each student; the first half is for program entry information and the second half is for exit data. Entry data include items such as race, ethnic group, class, gender, student gains, class location number, program, type of class (e.g., PACE, ABE, GED, homeless, JTPA, home instructor, JOBS), enrollment date, years in school, test scores, functional entry level (ABE, GED, etc), referral sources, employment, and whether the student lives in an urban area with high unemployment. The exit form includes separation date and status (completed or still enrolled, progress in level enrolled), total hours of instruction, separation test results, functional exit level, and achievements (GED, high school diploma, passing score on the ESL test for immigration).

The scannable forms are under revision because local staff using the TABE who don't have norm books have been guessing grade levels. TABE tables will be entered in the computer and the computer will convert standard scores submitted by the programs to grade levels. This will save time for teachers, who should be using the TABE as a diagnostic instrument for competencies rather than for grade levels.

2. UPDATING DATA

Updating information has been a problem in this MIS. To enter new information, the student must be recorded as having exited the program and then recorded as newly enrolled. In effect, this means that the student is counted twice. Additionally, a specific problem has arisen under the category of class type involving students enrolled for less than 12 hours. These students are not included in aggregate reports, but are recorded to account for the large total amount of staff time spent on them.

The MIS is being reprogrammed to allow users to track students with a document number, identify fields needing to be changed, and change data in those fields. Staff had hoped to use social security numbers to track students, but many students, especially those with prison records, were reluctant to reveal their social security numbers.

3. QUALITY CONTROL

Expectations for data quality have risen, and training, technical assistance, and consistent editing at the scanning stage assure data integrity. The first and most effective quality check occurs when the form is scanned into the computer. Both the computer and the special data input clerk identify missing information; the clerk identifies incorrect responses and catches errors immediately. Any incomplete or incorrect forms are returned to the program, rewritten, and resubmitted. In order to avoid overcounting students, only correct forms are incorporated into the MIS. In one year, incomplete information resulted in an undercount of 7,000–9,000 students.

4. TRAINING AND TECHNICAL ASSISTANCE

The Office of Adult Education Services provides training and technical assistance. All training sessions stress the importance of accurate and complete information, and program staff are well aware that funding hinges on data and that data must present a true picture of the teaching situation and needs.

Training in the use of the scannable forms and the MIS system is provided to new teachers and supervisors. In 60- to 90-minute sessions, trainers (the MIS manager, office staff, and area consultants) use the state report and an overhead projector to show how data fit into the total federal picture, stress how important the data are, and show supervisors and new teachers how to complete the form, field by field.

Area consultants also provide regional training sessions and personal technical assistance. The Office of Adult Education Service operates a toll-free number for technical assistance, and two or three calls a day involve questions about the MIS scannable forms. The Office is also developing a videotape to instruct teachers in using the form.

C. CHALLENGES

There have been problems obtaining high quality, accurate data. However, high expectations, frequent training and technical assistance, and unwillingness to settle for inaccuracies have raised the quality of the data.

D. DATA USES

The primary purposes of the MIS are to obtain accurate data for state reports, provide quality checks, and ensure that districts have accurate student rosters.

The Office of Adult Education is using an SAS program to compare outcome information with student, class and program characteristics to predict how students will do in a program. The Office hopes that a new report form that breaks down achievement results on the local level will enable teachers and programs to make statewide comparisons within grade level. Through such information, teachers or programs that work well on particular levels could help other programs not doing as well. This effort started last year, but data were not very accurate; the Office anticipates that more accurate data will enable them to improve the reports.

1. SHARING DATA

None.

2. COLLABORATIVE DATA COLLECTION EFFORTS

JOBS, JTPA, and AEA programs operate out of the same state office. Data needed for any of these programs are recorded on the scannable form and loaded into the mainframe. Each program receives its own printout of data. Staff from all programs participated in developing the form so it would meet everyone's needs; thus, in many cases, it collects more information than any single program wants. It is updated every year and had to be dramatically revamped because of changes in the federal form.

There are no barriers to sharing information. Although there are data elements that some state program directors don't

particularly need, the philosophy seems to be that if one program needs that data, it is important that it be incorporated.

MARYLAND

A. OVERVIEW

Literacy Works is Maryland's statewide initiative to eliminate illiteracy by the year 2000. A Literacy Works team in each of the 24 counties coordinates adult literacy efforts in that county. A team coordinator is responsible for collecting all demographic and program data about the county and sending the information to the Maryland State Department of Education.

Maryland's computerized MIS was designed in 1990, and by 1991, all counties used the system. An MIS work group, comprised of representatives from adult education providers (including community colleges, public schools, literacy councils, and libraries), is revising the data form to include additional information, and it is anticipated that the revised form will be piloted in 1994 and operational by the following year.

The initial investment included approximately $150,000 for scanners and computers, $10,000 for consultants to write the programs, and $20,000 for development and production of the forms. Additional money will be spent on revising and producing the new form. The program is funded by state Literacy Works and federal Section 353 monies.

1. LOCAL PROGRAM LEVEL

The Literacy Works coordinator in each county collects data from all state, federal, and privately funded adult education programs. Each county determines the schedule for submission of data independently. Some county coordinators require programs to submit forms immediately after general intake time (i.e., mid-September), others collect forms at the end of the calendar year, and many process forms as students enroll. Larger counties process data continuously, while smaller counties can process data all at once.

Individualized data for each student are recorded on forms that then are scanned into personal computers. The local program coordinator or teacher is responsible for reviewing and submitting the scannable forms; students generally complete the personal information. The county team coordinator maintains individual records in hard copy for at least 18 months as well as on the computer database.

Each Literacy Works coordinator has an NCS Opscan 5, Model 20, connected to an IBM-compatible personal computer. Different types of personal computers are used. Four programs were developed by consultants for the scanning equipment: the first reads the enrollment form, the second reads the update form, the third reads data for external high schools, and the fourth reads and scores individual student tests. All of these programs are installed on Opscans in all 24 counties. Each type of provider (e.g., community college, LEA) has a different code, so data can be sorted by this characteristic.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Data are sent from the county coordinators to the Adult and Community Education Branch of the State Department of Education on disk twice each year: January 31 for students enrolled between July and December, and July 31 for students enrolled between January and June. Data for each fiscal year are maintained separately; therefore, all students are enrolled as new students in July, regardless of whether they participated in an adult education program the previous year.

3. STATE LEVEL

A data analyst in the Department of Education's Adult and Community Education Branch tests each disk for readability. If the disk is readable, it is sent, with a memorandum listing the county and file names, to the Department's Office of Management Information System (OMIS) to be loaded into the mainframe. The actual disks are then returned to the Adult and Community Education Branch. Data are maintained as individualized records on the mainframe, but can be aggregated by type of provider, county, and participant characteristics. Two state and 24 local reports are produced from the cleaned data on the mainframe.

OMIS uses a Hewlett Packard mainframe, and the data analyst uses a free-standing Hewlett Packard 256 (IBM clone). The OMIS staff wrote two programs; one generates the federal adult basic education report, and the other generates the statewide Literacy Works report.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data needed for the federal adult education report and the state report, such as provider (e.g., community organization or public school), type of services (e.g., class, whole group, tutorial, computer-assisted instruction, or combination), and demographic

data (e.g., gender, ethnicity, and employment status), are collected on the enrollment form. The update form collects data such as total hours of attendance, test scores, student achievements (e.g., removal from public assistance, employment, GED), and reason for separation.

All county coordinators submit updated information on participants along with enrollment data on new participants. The scannable form is two-sided—one for enrollment and the other for updates. The coordinator chooses the appropriate command—"Read update," for example—and additional data are added to a current file, identified by social security number. A historical data file on each student is maintained indefinitely.

2. UPDATING DATA

None.

3. QUALITY CONTROL

Edit programs that identify incomplete items are part of each scanner program. The Adult and Community Education data analyst checks each county disk for readability, and OMIS rechecks each disk for incomplete items with another edit program. If either of these checks finds a problem, the disk is returned to the county coordinator for revisions. Further, local programs receive a printout of their own data from the Adult and Community Education Branch to check for accuracy.

4. TRAINING AND TECHNICAL ASSISTANCE

At the beginning of fiscal year (FY) 1991, three days of training in completing the scannable form and using the scanning equipment were provided to local coordinators. Coordinators were expected to train others in their own counties on what they had learned. NCS helped conduct the workshop.

During the year, an MIS work group addressed issues and concerns that coordinators had conveyed to the data analyst, including the need for a scanner manual. The data analyst spoke with coordinators over the telephone, visited sites, and sent around a sheet with the names of county coordinators who understood the system well. NCS operates a toll-free help line. During the first year, NCS maintained equipment under a one-year service contract that was not renewed because of the expense.

C. CHALLENGES

Initially, the programs for producing reports had many bugs, such as numerical discrepancies; however, OMIS has resolved the

problems. The MIS work group will revise the form to include more data elements and make it more user friendly, reflecting suggestions from local program staff. The new form will be piloted in six counties while the current system is still operating. The new form should be less time consuming, capture all important information, and omit superfluous information.

D. DATA USES

The state uses the data to generate two state-level reports. The long-range plan is to use the data in research to determine the impact of computer-assisted instruction on learner outcome and to identify successful retention and recruitment approaches.

All coordinators receive both statewide reports and their own county report. Some local programs use these data to report to their boards or to apply for funding; sometimes the state-level data help provide a context for local program funding requests.

Data are passed on to other state agencies upon request, but data from other agencies are not generally incorporated in the adult education report. The Adult and Community Education Branch does request a record of funding totals spent on literacy services in other agencies in order to get a picture of the total amount spent on literacy services in the state.

1. SHARING DATA

None.

2. COLLABORATIVE DATA COLLECTION EFFORTS

One objective of the statewide Adult and Community Education Advisory Committee is to look at how other programs collect data and similarities in data needs. The committee includes representatives from the Department of Education and other government agencies, the business community, CBOs, PICs, and the legislature. The Adult and Community Education Branch has not discussed collaborative data collection with other agencies, but that is on the agenda. It is a concern, but not a top priority.

MASSACHUSETTS

A. OVERVIEW

The computerized MIS for adult basic education in Massachusetts is one part of a larger program quality system linked to student goals that is being developed in the state. At the time of this study, the MIS was in the first phase of a 16-month field test involving a sample of 1,000 students in 10 ABE/ESL programs. Implementation of the total program quality system is dependent on cost, quality of data, and the field test results of the MIS and other system components. Thus, the MIS may include more programs or all students from selected programs in the future.

The field test was funded by AEA and state matching funds. Each of the 10 programs was given up to $2,000 to for a computer, monitor, modem, DOS 5, and printer, and an additional $1,500–$4,000 for data input, assessments, and training. Other costs, such as state staff and consultant time, were not available.

1. LOCAL PROGRAM LEVEL

The 10 field test sites are collecting student data on an ongoing basis using standardized forms. Data are keyed into personal computers at the program site and sent on disk or via modem to the Bureau of Adult Services. Teachers have the option to maintain hard copy records for all students, but records will also be maintained on the computer system, which has the capacity to print out individual student histories. The data is managed with a menu-driven, user friendly program developed in dBASE III+. The program uses approximately 16 databases, such as demographics, goals, attendance, and assessments, linked by student numbers.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Linked records on each student, containing all individual student data other than name, are transferred to the Bureau of Adult Services via modem or disk on a monthly basis.

3. STATE LEVEL

On the state level, data are to be used in aggregate but will be accessible in individual records. Data can be sorted and reanalyzed by a variety of characteristics, and analyses will be conducted in dBASE III+ on a 386 IBM-compatible personal computer. Other software and hardware may be used when the extent of the analyses has been determined.

B. DATA MANAGEMENT

1. DATA ELEMENTS

All student data needed for the federal adult education report are being collected through the MIS system. Data elements include demographics, attendance and retention patterns, age, employment, native language, and educational background. However, data on sites and staffing are not collected. Standard intake, assessment, goal, exit, and progress forms were developed in consultation with local programs as part of this project. Corrected and updated data will overwrite old data each month. New data elements, such as ongoing assessments, will be added to the database monthly. Staff are in the process of developing quality checks.

2. UPDATING DATA

None.

3. QUALITY CONTROL

None.

4. TRAINING AND TECHNICAL ASSISTANCE

A program contact person and a data entry person from each of the MIS demonstration programs received four hours of training initially and will receive follow-up training. In addition, 10 hours or more of training were necessary for orientation to the forms and assessments on which the system is based. Bureau of Adult Education staff provide training and on-site and telephone technical assistance as needed.

C. CHALLENGES

Although the database program took longer than anticipated to write, there were no major problems with the MIS in terms of writing. Initial feedback from programs, however, raised issues regarding the time needed to complete the forms and input the data and questioned the validity of some of the statistical assessment data being used.

D. DATA USES

The data will be analyzed to determine relationships among student variables such as attendance, retention, and progress. Because program staff will enter information on a sample rather than the universe of students, field test data will not be used to complete federal and state reports. If the field test demonstrates that the MIS is efficient and cost-effective, the system may be

expanded to include all students. Aggregated state-level data will be disseminated on the local level to assist local programs in self-evaluations.

1. SHARING DATA

None.

2. COLLABORATIVE DATA COLLECTION EFFORTS

Collaborative data collection efforts, such as standardized intake and assessment forms, have been discussed for several years, and there was an attempt to develop a standardized intake format. However, the project was never fully developed because of cutbacks in funding. Department of Education staff are considering reviving the effort to develop a more coherent approach to statewide ABE funding, service provision, and information management.

Coordinating data collection is difficult for several reasons. Any coordination effort involves an initial financial investment. A different data collection mechanism may demand time local program staff would prefer to spend providing educational services. Some staff are reluctant to share elements of managing their programs, such as data collection. Finally, although efforts are being made to stabilize funding (through multi-year grants) and professionalize ABE/ESL positions (through more training and better salaries), significant staff turnover at programs still means higher costs for maintaining the system.

MICHIGAN

A. OVERVIEW

The Michigan adult education MIS has been in operation for more than five years and involves computers at the state and district levels, although linkage between the two is via hard copy. Microdata developed software for local schools, but only 60% of local districts use the recommended package. There are no plans to develop the system further, and the state office does not anticipate that all local districts will use computers for their data.

The original investment was $30,000, used by the state adult education office for research and development and to help districts buy the Microdata STUREC for $99 per unit on the premise that the financial incentive would induce districts to take advantage of it. A software enhancement, upgraded to meet the data needs of state and federal data reporting requirements, was not subsidized by the state and cost each district $199 per unit. According to Microdata, the actual cost of the software is $895 per single user and $1,919 for multiple users (unlimited connections). Districts buy their own computers.

1. LOCAL PROGRAM LEVEL

Local AEA-funded programs, community-based literacy organizations, and state-funded programs provide data to the Michigan MIS. Basic enrollment data on participants are collected by teachers at intake and when students change classes or programs. Students are assigned to a class by the district computer. Attendance and grades can be entered by student or by class. Most local records are maintained both in computerized databases and in hard copy.

Local programs send individualized student records in hard copy to their adult education district office. At most district offices, an operator enters the data on an IBM-compatible personal computer using STUREC. Data elements can then be sorted and printed out in a number of combinations, and reports on students, classes, and programs can be produced. Because of state reporting requirements, districts need to maintain hard copy records in addition to maintaining individual student records on the computer. Some districts do not use computers for student data.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

At the adult education district offices, data elements, including achievement and attendance, are aggregated and submitted in hard copy to the state in annual reports.

A total of 60% of the 284 adult education districts use STUREC. Thirty-five percent of the remaining districts work through the intermediate school district (ISD) programs. Networking on STUREC is possible (a separate enhancement can connect centers together), and approximately 10% of the centers (25) are linked. This is necessary for large districts that need multiple data entry operators but would like to maintain a single database. STUREC software works on any IBM-compatible personal computer but will not run on Apple computers. The latest version of the software requires at least DOS 3.3. The software is very flexible because it does not make any direct hardware calls.

3. STATE LEVEL

District annual reports are received by the Adult Extended Learning Service, which sends the reports to the Department of Education data center. In the data center, hard copy reports are compiled on the mainframe and the information is used to generate the federal adult education year-end report.

Data at the state level are maintained in aggregate form only. Michigan uses a Honeywell DPS 8000 mainframe and GCOS 8 operating system. Programs for the mainframe include vendor (Bull Corporation) software and programs written in-house using COBOL.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements are those required for the federal adult education report, such as student characteristics, attendance, and progress; class types and number; and number of full-time students (needed for state aid). STUREC district software collects 920 student descriptive variables such as gender, race, ethnicity, and age.

Because the Michigan adult education program is high school completion and diploma-driven, important data elements include transcripts and credit history records. The Michigan legislature recently tied a relationship between attendance hours (rather than enrollment hours) to funding; therefore, the STUREC software has been adapted to track actual, rather than expected, attendance.

2. UPDATING DATA

Data are sent by local districts to the state office once a year in an annual report; no updates are made at the state level between annual reports.

3. QUALITY CONTROL

Data that teachers send to district offices are entered in the system by an operator. The operator can produce reports from time to time (generally each semester) summarizing these data. These printouts are returned to each teacher for approval and signature. In addition, the software can print different combinations of data elements, enabling users to check for discrepancies.

4. TRAINING AND TECHNICAL ASSISTANCE

The adult education office does not provide any systematic training. However, consultants conduct individual program reviews every four years, and problems identified at that point become training topics.

Microdata trains district office staff for a small charge. In conjunction with the Michigan Association of Adult Educators, it also provides software training during the summer. Other software training is provided on an as-needed basis, either at the district office or at the Microdata training facility.

The state does not provide any technical assistance. Microdata does provide technical assistance for software problems and, for a nominal fee, distributes a newsletter and provides technical assistance over the telephone and in person. Three to four hours of telephone technical assistance are provided daily. Several programs have modem hook-ups to Microdata and can receive technical assistance over the modem. This system works well because district staff can learn by watching the problem being resolved on their own screens.

C. CHALLENGES

None.

D. DATA USES

Data are used mainly to complete reports, such as the federal adult education, state board of education, and association reports. In some cases, data bolster requests for legislation or funding. Each adult education district receives a copy of the annual adult education report, which contains aggregate data on adult education

programs. Some local programs use the data for press releases or other publicity opportunities or to share with local boards.

Local programs make frequent use of locally maintained data. The STUREC software is designed to enable counselors to call up credit requirements by students and allows district staff to use mail merge to send recruitment letters to students who were formerly but are not currently enrolled.

1. SHARING DATA

Information is not shared with JOBS or JTPA. There are no joint data collection efforts on the state level. Under a previous administration, the governor's office began an effort to develop a computerized "opportunity card" with information on a student's adult education history that could be carried from program to program. It was expected that this project would facilitate easy and accurate transfer of information among adult education programs, including JOBS and JTPA. The present governor does not support this project.

The barrier to sharing information seems to be a commitment on the part of all involved to overcome the logistical problems of developing a system. Programs vary in their interest in sharing information, but it was unclear which programs are more or less enthusiastic.

2. COLLABORATIVE DATA COLLECTION EFFORTS

The adult education office has considered a coordinated data collection effort, but not to the point of developing or implementing a plan. The Adult Education Division director is on the JOBS coordination council and meets regularly with the Departments of Labor and Commerce, but there are no formal or structured attempts to collect data collaboratively.

MISSOURI

A. OVERVIEW

Under the Missouri MIS in operation at the time of this study, local programs sent hard copy aggregated reports once or twice a year to the state office, where data were then hand-entered into a computer for analysis. However, the Adult Education Office was in the process of developing a new MIS in which local programs will send individualized records via modem or scannable forms to a central location, either a university or community college, where the data will be compiled into a database that can be accessed by the Adult Education Office using a modem. The new MIS is to be funded with federal money.

For several years, the Adult Education Office has maintained a large literacy database with information from community-based organizations and other literacy programs. These programs probably will not participate in the new MIS, but there will be computer links between the two databases so that data can be compared.

1. LOCAL PROGRAM LEVEL

Programs funded with federal or state adult education money will participate in the proposed MIS. Data will be coded onto scannable individual student forms (data are currently collected in aggregate). Most local programs currently have some type of personal computers, such as IBM or Apple, but computers at the local level will not be necessary in the proposed MIS.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Under the proposed MIS, individual student records will be sent by modem or on scannable forms from local programs to a central location. Although it is unclear how frequently data will be transferred, it would be more often than once or twice a year. At this central location, staff will scan the bubble sheets and input data into a statewide database. Local programs will be sent hard copy printouts of their data. The Adult Education Office will access the database via modem to produce reports.

3. STATE LEVEL

Data will be maintained on the database in individual records. Currently, the Adult Education Office staff use Lotus on IBM

personal computers to process data. New software will be written in-house for the proposed system.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements to be collected include class retention, student progress, and the number of students who participate fewer than 12 hours. Data elements are to be grouped by individual classrooms to give local administrators tools to evaluate each class.

2. UPDATING DATA

Training sessions provide an opportunity to discuss common errors with local staff.

3. QUALITY CONTROL

None.

4. TRAINING AND TECHNICAL ASSISTANCE

Staff from the Adult Education Office and the Staff Development Unit of Moberly Community College provide local in-service training every September to discuss the interpretation and use of data for program improvement. The Staff Development Unit provides monthly training sessions for new teachers and technical assistance upon request. These channels for providing training and technical assistance are to be used for the proposed MIS.

C. CHALLENGES

When considering options for the new MIS, state staff faced the challenge of working with a number of small programs without skilled computer operators. As a result, the proposed MIS does not require computer use at the local level.

Although the structure of the MIS had been determined at the time of this study, no decision had been made regarding where the state-level database would be maintained. The original plan was to contract with a private Baptist college, but the college's Board of Directors was reluctant to receive money that would be tied to federal restrictions and conditions. If the issue is not resolved, another university or community college will be solicited for the contract.

D. DATA USES

A major purpose of collecting adult education data is to impact individual classes and programs. Data will be used to determine the progress of local programs and to evaluate programs for future funding, and state staff emphasized the usefulness of having an objective basis for funding decisions. In addition, data will be compiled by class and returned to the programs to facilitate self-evaluation. Data are given to local programs once a year, but state staff would like to return data more frequently.

1. SHARING DATA

Currently, Family Services staff give the Adult Education Office monthly hard copy printouts of their data on educational activities of JOBS participants. JTPA information is sent by local programs to the Adult Education Office.

2. COLLABORATIVE DATA COLLECTION EFFORTS

JTPA funds bought Apple computers that many adult education programs use for data management.

MONTANA

A. OVERVIEW

The Montana adult education MIS is computerized at the state level but not consistently at the local level. A one-page form, designed to conform to the standardized adult education report, is sent by the Adult Education Office to local programs that complete one for each student. Once a year, copies of all completed forms are sent to the Adult Education Office where they are hand-entered into a personal computer hardwired to the state mainframe.

At the time of this study, the MIS had been in operation for a year. The Office of Adult Education provided technical assistance to create the program; it took the programmer approximately 200 hours to write the program and a guide to the form. In the future, the MIS may use scannable forms or the PSINET computer network for data reporting, but these options are expected to be at least several years away.

1. LOCAL PROGRAM LEVEL

All of Montana's 25 adult education programs that receive state or federal money participate in the MIS. Local programs complete one form for each student, including unique program and student identification numbers, keep the originals, and send photocopies to the state office. One adult education program aggregated its data on its own computer and submitted the printout.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local programs mail a copy of individual student forms to the state office at the end of each project year. A total of 3,488 forms were processed during the first year.

3. STATE LEVEL

The state maintains the data by individual student. Using exactly the same program as the U.S. Department of Education, the state computer specialist is able to produce the individualized data in the format needed for the federal adult education report. Data are also aggregated by program and cross-tabulations are performed.

An IBM mainframe in the Office of Public Instruction's Administrative Services is hardwired to the Adult Education

Office's IBM personal computer. Foxpro is used to enter data and do some aggregations and cross-tabulations, and Table Producing Language (TPL) is used to form tables from the individual records. TPL is also used by the U.S. Department of Education and was used by the Bureau of Labor Statistics. The Adult Education Office will be using a personal computer version of TPL in the future.

B. DATA MANAGEMENT

1. DATA ELEMENTS

In addition to data required for the federal adult education report, the following data elements are collected: number of contact hours per month, number of home study hours (many students live far from programs and do most of their studying at home), and a legal entity identification number.

2. UPDATING DATA

Each year's data are discrete; therefore, there is no need to update the information.

3. QUALITY CONTROL

Quality checks, e.g., for numerical discrepancies and incorrectly coded data, are built into the program.

4. TRAINING AND TECHNICAL ASSISTANCE

No training and little technical assistance are provided on this MIS. Local program staff receive what is reported to be a well written manual, and may call the Director of Adult Education with questions.

C. CHALLENGES

The process of hand-entering individual student forms took far longer than expected in the first year, and the state will use a subcontractor to enter data and send a tape to the Adult Education Office in the second. Student identification numbers were another problem; because the MIS began mid-year, social security numbers were not collected for all students and thus cross-tabulations with data from other programs could not be done. Social security numbers will be used in the future.

D. DATA USES

The data will be used to prepare the federal adult education report and cross-tabulated to identify unusual conditions that should be addressed by the Adult Education Director.

When all records are identified with social security numbers, adult education factors can be compared with other information about participants. For example, the number of students actually working can be identified by checking the number registered for workman's compensation. GED data are stored by social security number, so ABE and GED performance can be compared.

The State Adult Education Director sends each program a copy of its aggregated data and writes a few items of interest in the state-level aggregated data in letters to the programs.

1. SHARING DATA

None.

2. COLLABORATIVE DATA COLLECTION EFFORTS

A state-level group, which includes representatives from JTPA, JOBS, LVA, businesses, and ABE, is working towards a common assessment instrument. The Adult Education Director hoped to create an instrument that would measure quantities important to all programs and was anchored to a normed test, but dissent at the public hearings prevented that. Instead, an existing adult education instrument will be used. When the group has come to agreement, it will submit a competitive bid to carry out the project using federal funds. It is difficult to coordinate data collection with JOBS because each JOBS county uses a different approach to gathering information.

NEW JERSEY

A. OVERVIEW

In the New Jersey adult education MIS, local program staff send hard copy reports to the Adult Education Division, where secretaries hand-enter data onto personal computers. A database program is used to produce reports. The database software cost approximately $550 and the personal computers cost a few thousand dollars each. Funds were a blend of state basic skills and GED money and federal grant money.

In the past, adult education programs reported data on scannable forms that were then processed by the Department of Information Resource Management. Because adult education programs are not mandated, the forms were given low priority and information was often returned late. At the time of this study, the scannable form was being revised, and the Adult Education Division Director hoped to obtain an in-house scanner within a year. A future direction may be to use a bulletin board system and have local programs input data directly.

1. LOCAL PROGRAM LEVEL

All federally -unded adult education programs participate in the MIS. Other programs, such as LVA and adult high schools, submit some but not all of the information.

Some local programs have personal computers, but no single software package is used; a few have developed in-house programs to produce a printout that resembles the state form. For the most part, however, local programs maintain data in hard copy, including individual student registers that resemble public school attendance records with space for comments.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local programs send hard copy reports to the state office. Enrollment data are sent when students enter a program (New Jersey adult education programs have open enrollment). Attendance information is reported on a quarterly basis. Exit data, such as attainment and reasons for leaving the program, are sent at the end of the year. Originally, enrollment and exit data were collected on the same form; separate forms are being used now.

Demographic data are sent by individual student, although as many as 20 students may be listed on a single sheet. In most cases,

each district operates one program; however, districts with multiple programs compile, but do not aggregate, demographic data. Attendance and exit data are sent in aggregated form.

3. STATE LEVEL

The Adult Education Division receives and maintains demographic data in individualized records and attendance and exit data in aggregate form.

Two IBM-compatible personal computers are used in the Office of Adult Education. The DataEase Application Program, produced by DataEase International, is used for data input and analysis. DataEase is also used to produce directories and generate reports. The program is a database shell; in-house staff set up screens to accept certain information, identify information fields, and create report formats.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data include all information needed for the federal report, such as hours and levels of participation, tests, and exit data.

2. UPDATING DATA

None.

3. QUALITY CONTROL

State office staff randomly select records to check whether data are reported correctly.

4. TRAINING AND TECHNICAL ASSISTANCE

All new teachers must take a half-day fall preservice workshop, part of which is devoted to record keeping and state data requirements. Sometimes record keeping is discussed at in-service workshops.

Local program staff call the state office with questions and comments on data definitions. In some cases, unique situations require exceptions to data entry rules.

C. CHALLENGES

There have been no specific difficulties with the New Jersey MIS other than human error. However, the Director of the Adult Education Division would like to have local staff report data using disks, modem, or an electronic bulletin board. Cost is the primary deterrent.

D. DATA USES

Data are used for the federal adult education report and to aid in distribution of state and federal funds according to the state formula. Data are also used to demonstrate the value of adult education to the state Board of Education, legislature, and other Education Department staff. The ability to present data visually and to sort by legislative counties is especially useful. ABE participant data can be compared with GED and other data. In addition, this MIS helps relieve the paperwork burden for local staff.

Each district receives a report of its own aggregated data. Previously, districts were given statewide data by district, but comparisons across districts created a powerful negative reaction among local staff, and this practice was discontinued. Local programs use district data such as test success rates and attendance for refunding applications.

1. SHARING DATA

Data are shared upon request. Staff are especially interested in Project Reach, New Jersey's version of JOBS, and JTPA. However, state agencies operating these programs do not have data that adult education staff can use. Either those data elements are not collected because the program has a different focus or the data reporting format is substantially different. Other agencies also double-count clients, unlike the Division of Adult Education.

2. COLLABORATIVE DATA COLLECTION EFFORTS

At the time of this study, interagency committees were being formed to discuss a standard intake form. Discussions were at a very early stage, and the current systems will not be changed until a new system is in place.

NEW YORK

A. OVERVIEW

In New York's adult literacy MIS, the majority of local programs maintain student files on personal computers and submit aggregate data to the Office of Continuing Education in hard copy reports.

The Office of Continuing Education would like to convert to a unit record system because individual records can be used in an array of analyses while analyses of aggregate records are limited. The Literacy Assistance Center in New York City provides a model unit record system which is the only one of its kind in the country. This 60,000-unit record file has three or more sets of data on each individual and has been used for research.

At the time of this study, 10 local programs were participating in a pilot test of individual student unit records that would be maintained on microcomputers and submitted to the Office in ASCII files on disk. The major expense for the pilot program is $50,000 for a consultant to provide technical assistance and facilitate meetings. An additional $5,000 has been set aside to finance meetings and transportation. Funding is provided by AEA monies. Should the pilot project be implemented statewide, Office staff would like to help finance the software, but not hardware, for local programs.

1. LOCAL PROGRAM LEVEL

A wide variety of programs participate in the existing adult literacy MIS, and data are collected on approximately 250,000 participants. Included are programs receiving federal funds under AEA, the Stewart B. McKinney Homeless Act, and the JOBS Education for Gainful Employment (EDGE). Agencies receiving state funds for adult education, such as the Welfare Education Program and the Adult Literacy Education, are included, as well as agencies such as public school districts, Boards of Cooperative Educational Services, community and two-year colleges, community-based organizations, service delivery areas, educational opportunity centers, agricultural and technical colleges, and libraries. Agencies providing adult occupational education programs will also begin to submit data.

Data are maintained in individual records at the local level, and approximately 75% of the records are on computers. Programs with computers generally have IBM-compatible or Apple

personal computers and use a variety of programs. ALLIES is used by New York City programs, which enroll one-third of the adult education students in the state; RECORDS from D-Vise is popular; and Student Manager from Gama Computer Services is used by multiple programs. The Office of Continuing Education supported the development of RECORDS. Local programs may choose to buy this or other software.

The 10 agencies participating in the MIS pilot project maintain data systems using an individual student unit record format and represent a range of computer expertise. One maintains its data using the RECORD software, one uses the Gama software, four (including a Literacy Volunteers program) use software they created to accommodate their individual data needs, and one uses a manual system and does not own a computer. Two agencies had not yet participated in the pilot project at the time of this study.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local literacy programs send three reports in hard copy to the Office of Continuing Education each year: a projection of activities and services in the upcoming year; a report of progress to date; and a final report of services provided. EDGE submits program and participant reports twice per year, but fiscal expenditure data are sent in monthly.

3. STATE LEVEL

Data are received by the Office of Continuing Education in hard copy and entered and maintained in aggregate on computer. When the new MIS is operational, data will be maintained in individual records.

Data are entered by hand in the Office's upgraded IBM personal computer using a program written by D-Vise in Clipper for use in dBASE III+ or Lotus. Enable software is used to produce some reports. With approximately a quarter of a million individuals in the database, the Office is considering transferring to software with larger capacity, such as dBASE III.

B. DATA MANAGEMENT

1. DATA ELEMENTS

In addition to the elements required for the federal adult education reports, the MIS gathers data on growth, growth vs. cost, and agency personnel. Growth statistics include the grade-level gains of participants in each level and category, standardized test gains, other performance indicators, and removal from public

assistance. Data on funding sources, contact hours per cohort, instructional hours, and average daily attendance are collected and used to calculate costs per contact hour, instructional hour, and unit of educational gain. On the program level, the numbers of administrators and teachers are collected.

2. UPDATING DATA

Only data in final program reports are entered on the Office's computer. These final data do not require updating.

3. QUALITY CONTROL

State-level staff check program reports for impossible and improbable data; if there is a problem, the report is returned to the program for revisions. Automatic quality checks are being programmed into the MIS.

4. TRAINING AND TECHNICAL ASSISTANCE

Local program and organization staff meet with state staff frequently to discuss questions about the MIS. Staff provide technical assistance over the telephone and free software updates for RECORD. State staff also visit programs to provide technical assistance.

The consultant working with the pilot project coordinates activities, works with the local agencies one-on-one in preparing unit records, and facilitates meetings.

C. CHALLENGES

Some programs are reluctant to submit individual student records because of confidentiality issues. The Office has proposed using a student identification system to preserve anonymity, but staff note that it may take some time for local programs to feel comfortable sharing individualized data. New York City has maintained individual records since 1984, but took three or four years to develop local program trust.

D. DATA USES

Data collected through the MIS are used frequently at the state level for ad hoc reports. In addition to providing information for annual reports and reports to the legislature, data are used for research.

The mid-year internal reports allow state grants management staff to measure local program progress towards meeting projected goals. If a local program is providing more or less instruction than

expected, state staff can provide technical assistance to help the local program meet its goal by the end of the year. This is especially critical in the EDGE program, where federal and state matching funds depend on enrollment; program staff must be aware of enrollment to ensure that program costs do not overrun enrollment rates. Fiscal expenditure data on the 123 EDGE agencies are submitted monthly, collapsed into a single quarterly expenditure report, and transferred to the State Department of Social Services (SDSS). SDSS transfers funds to the NYS Department's Bureau of Federally Aided Programs within the Office of Educational Finance.

State-level fiscal decisions are made using adult education data gathered through the MIS. The high quality of the data and graphics impressed legislators into providing additional funds for the social service reform adult education programs. The previous year's final and the current year's interim reports from local programs are used to make budget decisions.

Data are also used to provide technical assistance. For example, state staff noticed declining GED passing rates in one area over a period of three or four years. Expert technical assistance was provided to GED teachers in that area, and the rate of success on the GED subsequently improved substantially.

The Office has begun an effort to develop standards among local programs and hopes to get local program staff to analyze their own performance. To acquaint programs with this idea, the Office sends each program a Performance Evaluation Report on the educational services provided, indicating the median for the state and the agency's range. If the agency is out of the range for the state, the program must send the Office an explanation or address the problem. All 300 adult education programs in the state participate.

1. SHARING DATA

None.

2. COLLABORATIVE DATA COLLECTION EFFORTS

The Office of Continuing Education operates the adult education component of the JOBS and JTPA programs, collects data on participants, and conveys the data to the Departments of Labor and Social Services. Funds are transferred from these Departments through the Office to the local agencies.

Because EDGE agencies have to track actual expenditures by different categories for social services and adult education reports

on a monthly basis, Office staff developed a software program to follow expenditures. The program can produce a monthly report provided the monthly figures reconcile; if the amounts do not balance, the program will not print the report until the errors are corrected. Monthly reports must be submitted through the Office to the State Department of Social Services in order for programs to receive their funds. Because monthly reports are accurate, the program's fiscal accounts balance at the end of the project year.

All new data collection efforts involve multiple systems at the state level. The pilot project using unit records is a joint effort of JOBS, JTPA, and adult education. These program staff are trying to make the unit record file fields compatible for the Departments of Education, Social Services, and Labor. This will allow a student's records to transfer from one adult education system to another, eliminating redundant testing and interviews. Office staff discovered that they and JOBS staff were improving data collection efforts simultaneously and recommended that the two groups work together. JTPA staff were invited to join the effort. The three programs are financing the MIS development together.

Office staff noted some barriers to collaborative data collection efforts. Each agency has its own purpose for collecting data: data could be used to do periodic analysis and reports, examine the entire agency's strengths and weaknesses, or facilitate case management. The Office uses data for the first two reasons, but confidentiality issues surrounding case management information may slow development of a collaborative MIS.

NORTH CAROLINA

A. OVERVIEW

In North Carolina's Literacy Education Information System (LEIS), student data are recorded on minicomputers at the state's 58 community colleges, transferred to the Department of Community Colleges, and processed at the state level using minicomputers and a mainframe. Colleges have direct access to each other and to the Department through a statewide computer network, but transfer data on tape rather than electronically.

Enrollment data are collected quarterly on tape and maintained by the State Information Processing System (SIPS) in individual records. Upon request, aggregated reports can be sent in hard copy or electronically to the Department of Community Colleges. Other data needed for the federal report are collected annually in aggregated form.

The last major feature for LEIS was installed in August, 1991, after three years of planning and implementation, and the system is now fully operational. In the future, LEIS may allow direct electronic access to data.

Because most of the hardware was already in place, expenses for LEIS were mainly for software development. At least $60,000 for personnel and an additional amount for consultants were the major expenses.

1. LOCAL PROGRAM LEVEL

Adult education programs supported by state or federal funds, including some local literacy councils, must submit data. Local providers use Prime minicomputers, which are based on the state's literacy information and database management systems.

Student data can be recorded on scannable forms, and approximately 20% of the community colleges scan the data into minicomputers. The remaining colleges enter data by hand from standardized forms. Hard copy must be kept until the community college annual report is completed. Staff back up the computer tape daily. Local literacy council data are not incorporated in the computer system.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

The five adult education programs offered through the community colleges—ABE, GED, adult high school, ESL, and propensitory education—submit individualized data on numbers and demographics of participants on a quarterly basis. Most other data required for the federal and state reports are sent in aggregate to the Department of Community Colleges annually. In both cases, data are transmitted on tape.

3. STATE LEVEL

Some state-level data are aggregated by community college, but quarterly enrollment data are maintained in individualized records. The state uses Prime Information (a literacy information system developed in-house for the Prime system), a database management system, and application software on Prime microcomputers. The SIPS mainframe is used to store quarterly data and produce reports upon request.

B. DATA MANAGEMENT

1. DATA ELEMENTS

All the data needed for the federal and state reports are collected from the community colleges. In addition, registration information is sent to the Department quarterly.

2. UPDATING DATA

None.

3. QUALITY CONTROL

The system has built-in validity checks to ensure that data are being entered in the right place and format.

4. TRAINING AND TECHNICAL ASSISTANCE

Local program staff were trained in the use of LEIS as part of regular statewide training sessions. State staff worked closely with program personnel to install the LEIS program and are available for on-site and telephone assistance.

C. CHALLENGES

Several problems have arisen in implementing LEIS: data input at the community colleges was a larger effort than anticipated, the software had bugs, and much of the data was missing. In addition, lack of continuity in administration has affected the management of the program. The system was moved from the Basic Skills and

Literacy Section and eventually placed under the Vice President of Program Services.

D. DATA USES

Annual data are used to complete federal and state reports. Quarterly demographic data are used to calculate FTE and guide funding distribution. Quarterly data indicating whether students have advanced one or more levels are also used in the annual federal and state reports.

Annual state-level reports are shared with community college staff who use them to compare their programs with others in the state.

1. SHARING DATA

A member of the Department of Community Colleges staff works with JTPA, and adult education and JTPA data are shared freely. JOBS, JTPA, and adult education share annual reports.

2. COLLABORATIVE DATA COLLECTION EFFORTS

Student Development Services in the Department of Community Colleges is developing a student process monitoring system to connect all adult education programs with the Prime system electronically. The system encompasses two smaller efforts, a universal transcript and comprehensive follow-up. The universal transcript would be used in high schools, four-year and community colleges, and universities to enable educational programs to transfer data more easily. The follow-up system will track education and employment for participants in all types of adult education programs. Both the universal transcript and the follow-up systems were awaiting legislative approval at the time of this study.

OHIO

A. OVERVIEW

At the time of this study, the Ohio Office of Adult Education, in conjunction with the Department of Human Services, was pilot testing a computerized MIS involving interagency agreements at the state and local levels, a referral system, reporting and record keeping, and a payment system. The intent of the MIS is to gather data that can be used as leverage for additional federal Family Support Act funding for adult basic and literacy education in the state. The initial cost of the pilot project was borne by federal Family Service Act and state adult education funds; the amount was unavailable.

1. LOCAL PROGRAM LEVEL

Four adult education projects supported by AEA and state funds were participating in the pilot project at the time of this study, and 12 were scheduled to join in the following year. The local programs record data on individual student scannable forms, and no equipment is required.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

The pilot programs submit individual student scannable forms to the state Office of Adult Education bimonthly. Other adult education programs submit attendance reports monthly and a performance report annually.

3. STATE LEVEL

Data are maintained at the state level on computer in individual student records. A computer program written in-house is used to process data on a digital Vax.

B. DATA MANAGEMENT

1. DATA ELEMENTS

In addition to data required for the federal adult education report, local programs submit number of hours of instruction; case, medical record, and social security numbers; and date of birth.

2. UPDATING DATA

None.

3. QUALITY CONTROL

State staff review the scannable forms for errors.

4. TRAINING AND TECHNICAL ASSISTANCE

The Office of Adult Education and the Department of Human Services provided an orientation training session for county staff. Topics included planning, reporting, monitoring, financial concerns, and trouble-shooting. State staff traveled to the counties to conduct follow-up meetings. Subsequent training sessions were held to trouble-shoot and plan the next stage of project implementation. State staff provide ongoing consultation over the telephone as needed.

C. CHALLENGES

There have been no major challenges to date.

D. DATA USES

Data collected from Ohio adult education programs are used for planning purposes (e.g., to identify segments of the population that are over- or under-served) and reports. Data from the pilot project will be used to leverage additional federal funds for adult education.

All adult education programs in Ohio are given aggregated state program data. They use it to profile their part of the total state picture for planning purposes.

1. SHARING DATA

Annual adult education reports are distributed to other state agencies.

2. COLLABORATIVE DATA COLLECTION EFFORTS

The pilot project is a joint data collection effort of the Office of Adult Education and the Department of Human Services, which originally proposed the idea Staff in both agencies have cooperated well; they view themselves as partners in assisting local programs.

OREGON

A. OVERVIEW

Community colleges administer adult basic education programs in Oregon and maintain individual student data, submitted by teachers on non-standardized forms, on computers. The community colleges send aggregated federal annual report data in hard copy to the state Community College Instructional Services (CCIS) once a year. The data are then hand-entered on a personal computer and aggregated to generate state-level analyses and reports.

The Oregon MIS has been in operation for some time, and for the first ten years all 16 community colleges had the same MIS equipment and software programs. However, there were many problems with the system, including the fact that it consistently produced incorrect information; as a result, the community colleges have developed their own data management systems.

In addition to the expense of buying Apple computers for some programs, the former system cost approximately $2,500 to set up and $1,000 per year to update or change. Because the CCIS is no longer maintaining the system, there are no maintenance expenses.

1. LOCAL PROGRAM LEVEL

AEA-funded and SLIAG programs participate in the MIS. Local programs must maintain hard copies of non-standardized registration, profile, and attendance forms for five years. The forms are not standardized because some programs want more data than others.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Most community colleges collect individual student forms from teachers at the end of the term or quarter, but specific schedules vary. The community colleges maintain data in individual records and send aggregated hard copy reports to CCIS once a year.

The community colleges vary in the hardware they use, although many began with Apple computers. Each community college has developed its own data management program in-house, using individually selected software. Several exemplary programs developed in individual community colleges are being used by other community colleges. For example, Chemeketa

Community College developed a reporting disk to facilitate student data collection. A Chemeteta programmer also created a Foxplus program to accept ASCII text downloaded from a mainframe to generate reports. Oregon Literacy, Inc., helped design a program being used across the state to track tutor and student data in tutoring programs.

3. STATE LEVEL

The state office collects data aggregated by community college district. Data are entered and maintained on an Apple personal computer. The program was developed in-house, probably using Lotus 123.

B. DATA MANAGEMENT

1. DATA ELEMENTS

In addition to data required for federal reports, such as ethnicity, exit, and demographic data, community colleges track instructor ethnicity and the number of students tutored.

2. UPDATING DATA

Data are submitted to the state once a year, so updates occur at the local program or community college levels.

3. QUALITY CONTROL

Before submitting data, community colleges print out reports by social security number or last name to check for duplication. When the Office of Community Colleges (OCC) reviews local programs, data such as hours reported are checked for accuracy.

4. TRAINING AND TECHNICAL ASSISTANCE

OCC no longer provides training; however, staff from Chemeteta Community College gave a demonstration of data entry software at a meeting of directors and staff. Special technical assistance is no longer provided, but was when all community colleges were using the same system.

C. CHALLENGES

OCC determined that a centralized computerized MIS was too expensive. Rather than maintain identical hardware and software in all community colleges, OCC chose to allow community colleges to develop their own approaches to data management.

D. DATA USES

OCC used program data to publish a book, *Scenes for Success*, which profiled adult education programs. Because it was expensive to produce, the booklet was replaced the following year with a one-page summary of program accomplishments. Data are also used in hearings to demonstrate progress toward the goals outlined in the state plan, such as increases in minority teachers and numbers and ethnicity of students served. The ABE Director of OCC compares the percent of those needing services to the percent served nationally.

A committee of local program directors compiles and sends data to all program directors and to congressmen. OCC also gives local programs a report of state data by district. Programs previously received data on only their own district, but they requested data on all districts in order to compare their progress to that of others.

1. SHARING DATA

None.

2. COLLABORATIVE DATA COLLECTION EFFORTS

A statewide data collection system, including JOBS, JTPA, and adult basic education programs, is under development. An integrated planning crew met for a year and began piloting the approach in three regions in 1992. It was anticipated that the system might be in use statewide by 1993 or 1994.

A bill in the U.S. Senate would allow a state to coordinate data collection efforts, in some cases waiving data collection requirements. Five states would be awarded competitive grants to pilot this approach.

CCIS is in the process of field testing a collaborative data collection effort that would gather data from all adult education programs, including Perkins-funded programs. Employees at the local level are concerned with confidentiality if data were to be shared. The planning crew is working with federal offices on methods to avoid breaches of confidentiality.

PENNSYLVANIA

A. OVERVIEW

For the most part, the Pennsylvania MIS uses computers on the state level and hard copy on the local level. It is developing a small demonstration project, an adaptation of the current system, that uses computers at both the local and state levels.

Existing System. Under the existing system, local programs submit three forms to the Bureau of Vocational/Adult Education: a three-part student data form (green for 321 ABE, GED, and ESL programs and white for state-funded Act 143 tutor training programs), a staff data form, and a program data form. All three forms are revised and updated annually.

Part one of the student data form (Dataform One) is submitted when a student enrolls, part two (Dataform Two) when the student completes a course or changes levels, and part three (Dataform Three) when student demographic data changes. This form is in triplicate; two copies are sent to the Bureau and the third is maintained at the local program. The staff data form, completed for each staff person, is submitted once a year, usually at the end of May, and tracks staff development. The program data form is submitted once a year.

The Bureau logs in all student forms, retains one copy, and sends the other to a keypunch subcontractor. The subcontractor returns a tape of the data and the original forms; this tape is written to disk, and several reformatted editing routines are run on the data. Staff complete missing values if they can reasonably deduce the missing data, put the edited data out on a raw data file, and then back up the data. A staff member runs a definition program (written in-house using SPSS PC+) on the mainframe on the data file to create an SPSS systems file.

When a student Dataform Two is entered, the computer examines the student's Dataform One data and pulls Dataform Two records into the buffer one at a time to make a match. The unique serial number used to identify the student must be on all entered records; if too much information is missing, the data are useless.

Demonstration Project. A pilot project, involving 10 local programs and funded by state adult education and federal 353 monies, is testing the use of computers to record data at the local

level with a dBASE program developed by the Pittsburgh Literacy Initiative. The program allows adult education programs to enter Dataforms One and Two directly onto the computer; the questionnaire appears on the screen, information is entered, and a file on the individual student is built.

At the time of this study, the demonstration project was in its second year, and programs submitted individual student records on diskette for the first time. The data are loaded onto a personal computer and run on a translate program to convert the dBASE file into SPSS readable format, essentially taking the dBASE file and creating an SPSS system file (which operates the same as an SAS data set). The premise for this translation is that to analyze a file with a large number of records, it is more time-efficient to initially translate these records into the format needed for analysis than to perform the translation on each data item for each analysis.

An SPSS PC+ program is used to export the data from the personal computer to the mainframe. The computer is hardwired to the mainframe and an emulation program allows the computer to operate as a mainframe terminal.

1. LOCAL PROGRAM LEVEL

ABE, GED, ESL 321 (now 322), and state-funded tutor programs—including state and federal programs in prisons, hospitals, and community-based organizations—provide data. Local programs maintain hard copies of individual student records. Programs participating in the demonstration project also keep individual student records on IBM personal computers using the dBASE program developed by the Pittsburgh Literacy Initiative.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local programs send Dataform One to the Bureau of Vocational/Adult Education when a student enrolls. A Dataform Two is submitted for each student once a year. Dataform Three updates are submitted to the Bureau when changes occur. Demonstration programs send completed Dataforms One and Two to the Division of Adult Basic and Literacy Education on disk.

3. STATE LEVEL

The data are processed through the Bureau, but a subcontractor does the keypunching. Data are collected by individual student, but can be aggregated by most variables.

The MIS uses the Department of Education IBM 30-81 K Model MVS/XA mainframe; the workstation computer is an IBM Personal System 2. Software includes the following: IBM PC 3270 Emulation program Version 1.21; Mainframe SPSS-X; SPSS PC+; Information Center One (IC-1), which provides dBASE, spreadsheet, and mainframe functions in one package; DCF/Script Mainframe Desktop Publishing; and Symphony, an in-house translation and definition program developed in SPSS-X.

B. DATA MANAGEMENT

1. DATA ELEMENTS

The student form collects data on 20 to 30 variables. Dataform Two (completion record) gathers data on whether the person completed, continued in, or separated early from the program; primary reasons for early separation; subjects taken; and outcome or achievements (e.g., educational, societal, economic).

The staff data form tracks staff development. The program form includes data on the number of classes held in each county; day/evening classes; unserved counties; articles in local media; contributions by public and private individuals; support services for target populations such as transportation, on-site services, child care, special curricula, and counseling; and linkages with other types of agencies.

2. UPDATING DATA

When demographic data on students change, local programs submit Dataform Three to the Bureau. Changes in schedules (i.e., class level, leaving the program) are submitted once per year.

3. QUALITY CONTROL

A MIS Research Associate looks for errors and missing data after forms have been keypunched or submitted on disk but before data are analyzed. In addition, periodic reports are sent to the local programs noting how much data they have submitted, and an annual report summarizes the information; local programs review the reports for accuracy.

4. TRAINING AND TECHNICAL ASSISTANCE

In-service training on completing forms is provided at staff development meetings. This is also the forum for training specific sites to use the computer database in the pilot project.

Local programs can call the Bureau with questions about completing forms. These questions may be answered by telephone

or letter, depending on the urgency of the question and the size and age of the program.

C. CHALLENGES

At the time of this study, a problem in the SPSS translation program was delaying computer processing, and all programs piloting the local computer system were required to complete hard copy reports.

D. DATA USES

Data are used to complete the state adult literacy report, the federal evaluation report, and an annual state adult education program evaluation report that encompasses the first two reports and includes additional data.

The adult education program evaluation report is sent to all service providers. Because the report mainly summarizes demographic data, it is not particularly useful for program development. Some programs use it to justify funding requests. Local programs also receive an annual report summarizing the data they have submitted to the Bureau.

1. SHARING DATA

The adult education annual report is given to the state Departments of Labor and Health and Human Services; annual reports on JOBS and JTPA programs are given to the Bureau. However, data on the programs are not shared throughout the year.

Because the programs have different interests, priorities, goals, and data needs, information sharing is not felt to be particularly useful.

2. COLLABORATIVE DATA COLLECTION EFFORTS

None.

RHODE ISLAND

A. OVERVIEW

Rhode Island is developing a computerized MIS that eventually will include all adult education programs that receive state or federal funds. One adult education program piloted the system in the first year (1991) and six programs were participating at the time of this study. Under the new MIS, local programs record student data on an IBM microcomputer using software developed by the Rhode Island Department of Education. Aggregated monthly and annual reports are produced with this software and sent in hard copy to the Department. Data in the annual reports are then hand-entered into the Adult Education microcomputer and aggregated to produce data for the federal report.

Many adult learning centers, community-based organizations (CBOs), and correctional institutions were not participating; CBOs have special problems in financing initial hardware purchases. Hardware for the microcomputers at the six sites costs approximately $15,000, and software totaling approximately $3,400 was purchased with the individual programs' AEA grant monies.

The Department of Education operates a mainframe connected to the University of Rhode Island and accessed through the MIS Office. Eventually, all information for adult education programs should be transferred via modem or disk to the mainframe.

1. LOCAL PROGRAM LEVEL

Local program records are maintained in computerized databases and in hard copy. Standardized forms are not used, although the Department would like to develop a common intake form.

The six demonstration projects use common intake and enrollment forms (single page front and back), designed by the Department of Education MIS section, to guide data entry. They are funded with AEA monies and use IBM microcomputers. The MIS Office wrote the local program software in PC-FOCUS. This software can operate like a database and contains programs that run on IBM mainframes and personal computers. In one or two cases, local programs bought the PC-FOCUS package and did local programming modifications. MIS is working toward using FOCUS as a basis for collecting information for GED testing.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local programs compile monthly and annual reports and send them directly to the Department of Education. At the time of this study, the six demonstration projects were using computers to produce the reports for the first time. Data are sent to the state in aggregate form, although individual files are maintained on local program computers.

3. STATE LEVEL

Data are maintained in aggregate form and are entered by hand into an Epson Equity (IBM clone). The software was written by MIS Office programmers in FOCUS, which is a fourth generation language. The state office uses PC-FOCUS.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements in the annual reports include demographics, enrollment, test scores, progression from level one to two, exit data, and other data that must be reported to the U.S. Department of Education annually. The total number of student hours offered and other support from the education provider (e.g., use of a movie projector) are also recorded. Eventually, standardized test scores will be included.

Monthly reports describe the numbers enrolled, who has left or entered, classes by level, and who attempted high school equivalency examinations. Monthly reports are not entered into the computer.

2. UPDATING DATA

To avoid double-counting, returning students are identified as "re-entering." FOCUS will not allow a social security number to be entered for two different records. The state office also checks the arithmetic.

3. QUALITY CONTROL

None.

4. TRAINING AND TECHNICAL ASSISTANCE

MIS staff worked with program directors and clerical staff at each center to describe the information needed for each space in the report. There was also a class to train program staff to operate a microcomputer.

Department of Education MIS staff answer questions over the telephone or travel to demonstration sites to work out bugs as they occur. Because local programs and the state office use the same FOCUS software, state staff are able to answer questions.

C. CHALLENGES

Other than software bugs, there have been no problems reported with the MIS.

D. DATA USES

Data will be used to complete the federal adult education report. Aggregated state-level data, often the same data that go to the Department of Education, will be sent to local programs. The system was too new to identify other uses for the data.

1. SHARING DATA

The sharing of information is growing; vocational and adult education staff sit together on a statewide Job Training Coordinating Council and other planning boards. The Adult Education Office will do a statistical report on JTPA program data and share these data at joint meetings.

2. COLLABORATIVE DATA COLLECTION EFFORTS

The pilot MIS is not compatible with JOBS data requirements, but would work with vocational programs, particularly programs for high school students. The Office of Adult Education is working in collaboration with the Department of Human Services, which houses JOBS, although DHS has an incompatible data collection system.

Adult Education staff have discussed collaborative data collection efforts, but their first priority now is to improve the education programs. Collaboration may be the focus of meetings in the future.

TENNESSEE

A. OVERVIEW

Tennessee's adult education MIS will be part of a comprehensive electronic network. Mandated by a state educational reform act, the emphasis of the MIS is K–12 education, and many of the details for working with adult education data had not been resolved at the time of this study. The MIS will include electronically connected mainframe terminals in all boards of education and LEAs in the state. All information—whether messages or student data—will be transferred electronically between local programs and the state office.

The Tennessee Department of Education contracted with Ernst and Young to analyze computer needs and develop an MIS approach over a period of two years. Fourteen different computer applications, including facilities and food management, were identified. A system to address all these needs would be prohibitively expensive, so the information system will focus on student data. Implementation began July 1, 1992 and the system should be in place in two or three years.

The goal of the MIS is to serve as a collection point for information. Individualized student data will be maintained on school district computers and sent to the state Department of Education five or six times a year. Data will be maintained in individual student records at the state level. The system will have the capacity to produce reports aggregated by teacher, school system, and other levels; individual and aggregated data will be available to feed to other state agencies or groups. For example, a college will be able to request information on how a specific student or how a recent graduating class did in high school.

The cost of the MIS is impossible to determine. Several MIS scenarios have been developed, and the specific capabilities of the system will depend on the amount of money available through the state. Estimates of cost range from $10 million to $560 million.

1. LOCAL PROGRAM LEVEL

All programs receiving state or federal funds will maintain and submit data in individual records. While local programs currently maintain records in hard copy, all forms (currently standardized) will be kept on computer.

Local districts have invested in an assortment of hardware and software. Districts may choose their own system provided it has at least a 100 megabyte hard drive and 32 bit technology. The Department of Education, which has tried to identify systems that will work well with the MIS, has statewide contracts with Apple, IBM, and Tandy, but does not require districts to choose these systems. A variety of software, including the Online Software Information Retrieval/Information Systems (OSIRIS), Tennessee Housing and Municipal Systems (THMS)[3], and Tennessee School System Software (TSS), may be used at the local level. Software vendors will be informed of the MIS data requirements so they can tailor existing packages to the Tennessee MIS.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

A data collection schedule (five or six times per year) will be given to the programs and software vendors. Data will be collected directly by the state, but the method of transfer has not yet been determined. In all likelihood, large districts will submit data tapes and small districts will use modems. It is unclear whether districts will dial the Department and download data or the Department will dial districts and collect data. CD-ROMs are being investigated, but the technology does not yet seem to be sufficiently advanced for this application.

The MIS will collect data from school districts. As adult education programs do not always operate within schools systems, there is some ambiguity as to how data will be transferred from them. Information from programs operated by the school districts is expected to be included in that district's database. The system for collecting data from other adult education programs has not yet been designed.

3. STATE LEVEL

Data will be maintained in individual records by the state and aggregated or manipulated by a number of characteristics, including specific schools and teachers.

Data will be processed on an IBM mainframe based on an AMDAL computer and Motorola Delta Series minicomputer (essentially a big Macintosh on wheels). Six in-house analysts will develop the software, using SAS for the mainframe and Informix for the minicomputer. Software will resemble a database program. Eventually the MIS might be transformed into an executive

[3] Although this system no longer exists, a software company continues to do business under the name THMS.

information system in which there would be limited access to sensitive data. The mainframe will be used to produce larger, state-level aggregated reports, and the minicomputer will be used to produce smaller, local reports and responses to requests for information.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data for the federal adult education report will be collected. At each of the five or six data collection points, a base of data elements plus a few different data elements will be requested.

2. UPDATING DATA

Throughout the year, the Department of Education will request new and updated information, rather than all existing information, from the districts. Updates will be added to current student records.

3. QUALITY CONTROL

The software has not yet been developed, so quality checks are not in place.

4. TRAINING AND TECHNICAL ASSISTANCE

Training and technical assistance will be provided by the Department of Education and the vendor. Specific details have not yet been established.

C. CHALLENGES

Many school systems have begun to procure computer systems and software in preparation for the MIS; however, there is no state-level guidance at this point to direct districts to the most useful systems or to help districts set up their systems.

The MIS may be used to convey data on individual students, who will be identified by social security or unique identification numbers, and there may be some unresolved confidentiality issues.

D. DATA USES

The primary purpose of the MIS is to satisfy federal and state data collection requirements, including state legislative committees and the Division of Adult and Community Education's financing administration. Data are used to track growth, recruitment, and retention of individual programs and measure them against recruitment and accomplishment goals. State staff can respond to

the numerous inquiries for information on specific programs using the MIS. The MIS may be used for analysis, e.g., impact of graduation rates on future needs for adult education courses.

Aggregated data are available to local programs, and the statewide newsletter highlights exceptional adult education programs, but no one seems to use these data for program development.

1. SHARING DATA

JOBS and JTPA currently share data in hard copy with adult education. Adult education staff send the Department of Human Services quarterly hard-copy reports on number of participants, services, demographics, and accomplishments. JTPA programs are on line with the Department of Labor, so the Division of Adult and Community Education can electronically transfer to JTPA monthly enrollment, demographic information, and accomplishment reports. If possible, the proposed MIS will collect data for programs funded by JTPA, Even Start, Homeless and the Appalachian Regional Commission.

One barrier to sharing information is the legal requirement for confidentiality. The system should be set up so that confidential information can be masked. Agencies that provide adult education in Tennessee work well together, so sharing information has not been problematic.

2. COLLABORATIVE DATA COLLECTION EFFORTS

None.

UTAH

A. OVERVIEW

The developing Utah MIS includes both computer managed instruction and reporting, and at the time of this study, 22 of the 45 local adult education programs were participating in the computer system network. Each program operates a file server and one or more networked workstations. Registration data and education and occupational plans are entered for each student. Students take placement, diagnostic, and mastery tests at the workstations, and their scores are maintained in their file in the computer. Approximately 250 tutorials, from levels 1 to 12, are offered at the workstations.

Each file server cost $5,500 and the networking software cost $3,500. Each workstation cost approximately $1,100 and the printers, $400. Local programs bought some of their own hardware and software and the state office paid for some with federal Section 353 funds. Programs pay $500 each for the AESOP Computer-Enhanced and Technology-Assisted Instructional Program.

Local project reports are produced on computer and submitted to the state Adult Education Services Unit in hard copy. At the state level, data are aggregated across the state by different data categories and by local adult education program. Computers are not used for this step; the State Director of Adult Education collects the local reports, attaches narrative and statistical reports drawn from local-level data, and submits the whole as Utah's adult education report to local, state, and national offices.

The Utah MIS has been operational for several years and is structured to allow vocational, business, and agricultural education programs to be added to the system.

1. LOCAL PROGRAM LEVEL

Data are collected from 40 district adult education programs and five applied technology centers. Local programs maintain data on computer in individual records. Standard forms and data can be printed from the computer.

The 22 programs in the computer network have between 1 and 30 workstations linked to an IBM PS2 model 80 or model 65 file server (300 megabytes). Workstations are PS2 model 30 or 25 (model 25 allows color enhancement). Novell is the commercial

networking software. An AESOP program, developed in-house, is used to register students, prepare occupational plans, determine placement, assess mastery, and generate tutorials and data reports.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Local programs submit computer-generated data in aggregated, hard copy reports once a year to the state Adult Education Services Unit. They have the capacity to submit data on disk, but no program currently uses disk or a state-centered modem because of cost. Those with computers have the capacity to print out reports that duplicate the state report format.

3. STATE LEVEL

State-level data are in aggregated format. The state office uses IBM PS2 model 80 computers connected to the 65 Novell networked local computers.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data collected include the following: student registration information (address, demographics), student education and occupational plan (long-range and intermediate goals, courses mastered towards that goal, courses yet to be mastered), and placement, diagnostic, and mastery assessment information. Some of this information, such as demographics and student status, is used for the state report that includes data on indicators of program quality.

2. UPDATING DATA

Data are updated continuously at the local level, but are not altered once submitted to the state office.

3. QUALITY CONTROL

According to state staff, information is just as accurate, thorough, and complete as the people who record the data. Attendance records have become more accurate since a new Section 353-funded project allows students to log in and out so their hours can be tracked, aggregated, and accumulated by computer.

4. TRAINING AND TECHNICAL ASSISTANCE

A state Adult Education Specialist holds half- to full-day training sessions with each program when its computer system is installed. Initially, the sessions taught all aspects of the system,

including how to load it; currently, the sessions teach how to use the system. Local staff can call the Adult Education Specialist on a Watts line to ask questions. The system is working well with few problems.

C. CHALLENGES

The biggest difficulty has been updating software and hardware. Changes must be made across all 22 programs. Some programs modify their own systems (e.g., adding cards) or purchase new equipment that operates differently from the old (e.g., new IBMs have Scuzzi drives that are not compatible with the back-up tape). Some program directors want to have the latest hardware and software, although the latest is not necessarily the best for the program. These differences between programs require that system-wide updates be tailored to each of the 22 programs.

Another problem has been the desire of local managers to be more directly involved in data entry and processing. Because teachers input data directly into the system, there is little need for administration to be involved at that level.

D. DATA USES

The MIS is used to prepare the federal adult education report. All directors and superintendents get a year-end report. Local programs use the data in a variety of ways; large programs might compile a summary sheet for their boards. The Adult Education Specialist distributes profile sheets that compare data for every program with state averages (e.g., the average cost per student clock hour).

1. SHARING DATA

Hard copies of JOBS, JTPA, and adult education year-end reports can be shared among programs.

2. COLLABORATIVE DATA COLLECTION EFFORTS

One or two cross-program meetings have been held to discuss collaborative data collection. However, the different data collection formats currently being used make collaboration difficult. For example, some programs identify students with an eight-digit number, while the adult education programs use four digits of the last name with four digits of the social security number. Each program chose the most useful method of identifying students and is reluctant to change.

In addition to different approaches to recording data, adult education staff are concerned with confidentiality. Although

sharing information within the government is not a breach of confidentiality, a chance exists that names and addresses, if released to another agency, might find their way into the commercial stream.

VIRGINIA

A. OVERVIEW

Under Virginia's new computerized MIS, teachers in local programs fill out standardized student data forms which are then sent to one of 86 program coordinating centers. Once a year, the coordinating centers submit data to the Adult Education Office; approximately 45 centers send the forms themselves and data are keyed in by a subcontractor (Rappahannock Goodwill), and more than 35 key in the data themselves and submit a disk to the Office. In 1992, 26 of the larger program centers began recording data on scannable forms, scanning them, and sending disks to the Adult Education Office. The system was expected to be fully operational in July, 1992, when the larger programs received their scanners.

1. LOCAL PROGRAM LEVEL

Under its Comprehensive Literacy Planning approach, Virginia funds 86 centers throughout the state—e.g., volunteer literacy organizations, community-based organizations, school districts, or community colleges—to coordinate adult education programs at approximately 150 locations. All of the programs providing data are funded through AEA or the state.

The state purchased all hardware for local programs. Twenty-six program centers will use Scantrons. Local hardware specifications are a 3- or 5-inch disk drive, IBM-compatible computers with a minimum of 640 K and one hard drive with a minimum of 20 megabytes. Local programs need MS DOS 3.3 or a later version. The state office contracted with staff in a local program to develop the software.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Teachers collect student data and send the forms to the program center, either upon enrollment or at the end of the year. If the program center collects data upon enrollment, the data are keyed in and the form returned to the teacher to record data at the end of the year. Program centers send data to the state once a year, in July.

3. STATE LEVEL

Data are collected and maintained by individual cases and, theoretically, can be aggregated by program or region or across

the state. The state system is DOS-based, and programs are written in Clipper.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Data elements include those needed for the federal adult education report and the name and social security number of the teachers so individual class reports can be produced.

2. UPDATING DATA

Programs maintain each year's database separately. After the information for the year is submitted to the state office, there is no need to update it. If the program sends a disk, state staff assume the information is complete. If individual forms are submitted, state staff review the forms for completeness before sending them to the subcontractor; incomplete items can be completed by program staff, but no other updates are done.

3. QUALITY CONTROL

Local programs submit enrollment data monthly; the month-to-month totals can be compared to the year-end report to identify gross inconsistencies. The Associate Director feels that year-end numbers of students might be undercounted because teachers do not complete the time-consuming forms for every student. State staff check that summary totals match up in the state report. Social security numbers can be used to avoid counting a student twice in one program but there is no check for double-counting across programs.

4. TRAINING AND TECHNICAL ASSISTANCE

The Adult Education Office set up half-day regional training sessions in several locations for administrators and secretaries. Training was conducted by the two staff people who developed the MIS. Technical assistance also was to be provided by these staff members, but they are no longer in the state office, and there is no formal provision for assistance. Local programs frequently call the state office with questions.

C. CHALLENGES

Staff at the Adult Education Office have expressed frustration that the adult education MIS is not performing as well as Department of Education staff said it would. Adult Education staff point out that the system was intended to facilitate data entry, but it takes much longer than anticipated to complete forms and enter

the data. They also note that useful local-level reports (e.g., class rolls, grade level advancement, retention by class) were to be computer generated; although the data are in the system, the software to extract the specific data elements has not been written. The situation has been made even more difficult because the two key MIS staff who were supposed to provide technical assistance left without training new staff.

D. DATA USES

Data are used to produce federal reports and, ideally, will be used to produce local reports. In addition, state office staff hope to treat the data statistically in SAS. The Associate Director sees this as an opportunity to use a comprehensive database on thousands of students to develop research in adult education. He sends a disk with the finished data to a research center every year where graduate students work with the database to identify significant data relationships.

The Associate Director would like to disseminate the federal report to the local programs, but feels the information is still too unreliable. Eventually, local programs should be able to generate local reports (class rolls, grade-level advancement, retention by class) that might be used by administrators to discuss class performance with teachers.

1. SHARING DATA

Paper copies of reports are shared through the State Adult Literacy Initiative Steering Committee, which includes representatives from the JTPA, Adult Education, Community College, and Library Boards.

2. COLLABORATIVE DATA COLLECTION EFFORTS

The Adult Education Office and JTPA tried to develop a joint data collection system several years ago under a state mandate to simplify data collection; however, differing data requirements undermined the effort.

The biggest barriers to sharing information are the different types of data collected and the different programs used to collect and store data. For example, JTPA uses a box data system developed in-house, but the Adult Education Office uses a program written in Clipper. In order to cross-reference students across programs, the data must be stored in the same language.

WEST VIRGINIA

A. OVERVIEW

West Virginia's adult education program operates a computerized MIS to collect data on adult basic and secondary education and is planning to transfer to a more sophisticated system being developed for K–12.

Existing System. Under the existing system all teachers submit standardized student registration forms to one of six regional adult education coordinators at Regional Education Service Agencies (RESAs). Because of budget constraints, two adult education coordinators were not replaced when they retired, so two of the four remaining coordinators are responsible for adult education in two regions. The coordinators scan the forms for accuracy and then forward them to the Office of Adult Education.

The Assistant Director of the Office of Adult Education gives the forms (approximately 20,000 per year) to the Office of Technology and Information Services (OTIS) in the Department of Education, which sends them to the Jackson County Rehabilitation Center. Under subcontract with the Department of Finance Information Services and Communications (IS&C), the Rehabilitation Center keypunches the forms, and OTIS pays IS&C for the service. The data are returned to OTIS on magnetic tape, and the forms are returned to the Office of Adult Education.

OTIS runs a set of programs on the tape and gives the resulting printouts—aggregated by state and individual program for each of the 55 LEAs—to the Office of Adult Education, which uses the state-level data to prepare reports and sends the local-level data to the programs.

Other than postage fees, the MIS costs approximately $3,000 per year for keypunching. The development of the current software program was made available in-house at no cost. The costs were balanced by a ten-fold reduction in the time teachers needed to perform administrative duties.

Proposed System. The proposed adult education MIS will be incorporated into the West Virginia Education Information System (WVEIS), the K–12 electronic network under development. Each RESA will have an AS400 computer that will function as a K–12 data bank and as a station in the network, enabling districts to communicate with each other. Schools will enter individual student

data on a continual basis. The data will be aggregated periodically in the RESA computer by school or by county. Individual records will be retrievable at the local level with authorization, but will be less available at the RESA or state level.

The K-12 MIS system has been piloted and should be on line statewide by July, 1993. Another year would be needed to incorporate adult education programs in the system. The lack of money, manpower, and local support might delay full implementation of the system.

1. LOCAL PROGRAM LEVEL

Under the existing system, all adult education programs funded through the Office of Adult Education submit data, including LVA and Laubach and some CBOs. Local records are maintained in hard copy (the standardized registration form). The registration form (Student Registration Adult Education 400) has been used for years and is updated as federal reporting requirements change. Although 90% of adult education programs have computer capabilities, no standard hardware or software is used in the operating MIS.

Under the proposed MIS, all programs operated by public schools and funded through the Department of Education, regardless of original funding source, will contribute data. Programs will be able to store individual data on computers and maintain hard copies of individual records.

All K–12 schools will have IBM-compatible personal computers by the time adult education is incorporated into WVEIS. A dedicated line and modem will connect each school to its RESA, where the software and data files are maintained. Each RESA will have an AS400 computer connected to the state mainframe by a dedicated telephone line. The NCS Comprehensive Information Management for Schools (CIMS) software was designed to capture information about students and finances; its first utilization is for K–12, but it can be adapted for adult education. Very little customization was done to the software because NCS cannot provide assistance when the software differs substantially from the original package.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

Under the existing system, student forms are sent by local programs to the state office via the RESA by July 15 of each year. Teachers retain the forms during the year to update student progress and other data. Forms are sent to the Rehabilitation

Center keypuncher in several shipments to accommodate teachers who are late with their data.

Under the proposed system, K12 data will be transferred from the counties to the RESA and from the RESA to the state via modem. The RESAs themselves will not process data. If certain reports are required by the state, schools will produce them and send them electronically to their RESA, where they will be retrieved electronically by the state. Eventually, the Office of Adult Education hopes to have adult education data collected through this system.

3. STATE LEVEL

Data are entered and maintained in the mainframe in individual records and can be aggregated by an array of characteristics or by program. OTIS uses a 9000 series IBM mainframe and COBOL programs written in-house.

B. DATA MANAGEMENT

1. DATA ELEMENTS

The student registration form is used to gather data needed for the federal report, including age, education level and progress, and exit data. In the future, WVEIS will capture information across an array of topics, including student demographics and grade level, finances, equipment inventories, type and location of programs, enrollment level, educational progress and attainment, entry and exit data, and job-related outcomes.

2. UPDATING DATA

Data on individual students are updated throughout the year by teachers; once submitted to the Office of Adult Education, data are not updated.

3. QUALITY CONTROL

Aggregating individual records at the state level only (rather than first at the local and again at the state level) improves the accuracy of the report. One calculation, as opposed to hundreds of independent calculations, offers fewer opportunities for error. Local teachers complete only one student registration form per student for each fiscal year, and local and regional administrators check the accuracy of each form to avoid double-counting participants. Defaults are built into the program for incomplete sections.

4. TRAINING AND TECHNICAL ASSISTANCE

Every new adult education teacher learns about reporting requirements in the required pre-service training. In addition, regional in-service training planned by regional coordinators and state level staff sometimes include half-hour segments on housekeeping issues such as reporting. Because reporting requirements are simple, entire in-service sessions are not devoted to the topic.

General technical assistance is provided as needed over the telephone. Most requests for assistance occur near the reporting deadline because teachers who learned about reporting requirements in the fall in-service sessions sometimes forget procedures by the spring.

C. CHALLENGES

There were very few problems in the MIS system's first year of operation. Screening the forms at the RESAs, for the most part, allowed time to send them back if not completed correctly. Locating teachers during the summer to correct incorrect forms proved to be a problem; in the future, regional coordinators and county directors will have a bigger role in ensuring that teachers' forms are complete before the school year is over.

Previously, teachers completed their own annual reports on computers. This system was changed because part-time teachers who did not have access to computers were at a disadvantage, and because data aggregated once at the state level are more likely to be accurate than data aggregated at the local level then again at the state level.

There is some resistance to the proposed WVEIS because some districts have invested money in certain types of financial and computer systems and are reluctant to join a different system.

D. DATA USES

In addition to completing federal reports, the Office of Adult Education uses the data to respond to questions asked by the State Board of Education and the Legislature.

Every two or three months, the Office of Adult Education sends all teachers and administrators an "information exchange." Sometimes this contains a summary of the adult education statistical report. In addition, the state office informs local programs that the state report is available upon request; approximately one-fourth of the programs request a copy.

The Office of Adult Education sends each LEA an annual report on its own data. LEAs use these reports to demonstrate the effectiveness of their programs in refunding applications and as part of their annual on-site evaluation. They use data from the state-level report in local presentations to show a statewide picture of adult basic education and the LEA's role.

An advantage of WVEIS is that data should be available more frequently; the Director hopes to be able to get a "snapshot" of data at certain times during the year to compare performance with the corresponding time of the previous year. This snapshot view also could be used as a management tool for short-term program and budget planning and to prepare the year-to-date statistical reports for legislative sessions, State Board of Education Meetings, and other purposes.

1. SHARING DATA

There is very close cooperation among JOBS, JTPA, and adult education. The Office of Adult Education is composed of three components: adult basic education, JTPA, and adult vocational education. JOBS is administered by the Office of Adult Education under a contract with the Department of Human Services. Data on JOBS participants are collected with data on other adult education participants and included in the adult education data report. Data on JOBS participants and correctional facility participants are also broken down separately. The adult education report is shared with the Department of Human Services and JTPA.

JTPA is overseen by the Director of Adult Education-JTPA. That component has its own reporting system; the Office of Adult Education generally does not receive its final report, but the information in that report would not be very useful to Adult Education.

2. COLLABORATIVE DATA COLLECTION EFFORTS

Adult basic education and JTPA do not coordinate data collection efforts because the data elements required for the programs are so divergent.

WISCONSIN

A. OVERVIEW

At the time of this study, the Wisconsin Client Information System, which replaced three existing and one proposed MISs, had been operated by the Board of Vocational, Technical, and Adult Education for one year. The section of the MIS dealing with grant activities was fully implemented and the course activity and graduation sections were to be implemented in 1993.

Adult education in Wisconsin is provided through 16 two-year colleges at 225 sites. Each of the colleges manages data through its own MIS department, which copies individual student data on tape and submits the tape to the state office twice a year.

The actual cost of the MIS is unclear as most costs were absorbed by the Board. Half of one position in the state MIS office was funded for this project.

1. LOCAL PROGRAM LEVEL

All adult education programs operated through the community colleges participate in the MIS. Most sites are actually run through the colleges, although in some cases community-based organizations can contract to operate a program.

Data are maintained in individual student files. Each district has a distinctive system. Many (6 of the 16) use an IBM AS400, some use big IBM mainframes similar to that of the state (but smaller), and some use Unisys. Districts use a variety of software, although most use COBOL. The system manual stresses that the state office will accept data in a particular machine-readable form; districts are responsible for maintaining or converting their data into that format.

2. TRANSFER FROM LOCAL PROGRAMS TO STATE OFFICE

The community colleges submit individual student data to the state MIS office twice per year. The mid-year report is used to identify potential problems, and the final report is given to the Board of Vocational, Technical, and Adult Education.

3. STATE LEVEL

Data are used in aggregate at the state level, but the Board has access to individual-level data. Information collected from the districts has been processed on a mainframe at the Hill Farms

Regional Computer Center, but beginning in the fall of 1992, an IBM mainframe at the Board's Information Technology Center will be used. The programs are written in-house using COBOL, CICS, and DB2. FAS is used for reporting purposes.

B. DATA MANAGEMENT

1. DATA ELEMENTS

Four types of records are maintained in the MIS: individual student demographics, course records, grant demographics, and activity records. In addition to data elements required for the federal adult education report, the MIS collects district and client identification numbers; client name, birth date, household status (single parent, displaced homemaker, number of dependent children), and address; disadvantaged status (academically, economically); type of handicap; prior academic experience (programs graduated, highest grade completed, institutions from which credits accepted); economic indicators (AFDC, JTPA, DVR, etc.); enrollment barriers (age, child care, family health, etc.); employment history; hours of service; referral source; enrollment and separation dates; support services provided; employment outcome (obtained subsidized or non-traditional employment); training outcome (type of course enrolled in or completed, improved skills for personal satisfaction); and reasons for separation (financial problems, grade problems).

Because this MIS is a collaborative effort among agencies with different reporting requirements, some questions are only relevant for certain programs, such as vocational education. Unlike the federal adult education reporting requirements, the Client Information System breaks down student level at entry for reading, writing, math, and ESL.

2. UPDATING DATA

Local programs have the option of deleting information by submitting a client delete record. All information on that client is deleted, and correct client information must be resubmitted. To change data without deleting, the appropriate record type is submitted with the correct information and the new data overwrites the old. All records are identified with record and client identification (social security) numbers.

3. QUALITY CONTROL

The software includes quality checks at both the local and state levels. At the local level, data are checked for compatibility with field type and compatibility between different record types.

Districts are responsible for pre-editing to ensure their data files are clean.

4. TRAINING AND TECHNICAL ASSISTANCE

Staff from the state MIS office and a separate Data Collecting Department in the Board of Vocational, Technical, and Adult Education conducted two series of full-day regional in-service training sessions. In addition, local staff came to the Board office for technical assistance meetings. Board staff plan to do another series of regional in-service sessions to discuss common data entry errors. Most technical assistance is provided over the telephone.

C. CHALLENGES

The state-level quality check on data has located numerous errors. State staff suggest that teachers, who might prefer to spend their time teaching rather than completing reports, are not meticulous about their forms. Frequent training is being provided to ensure that the forms are completed correctly.

Although state-level administrators had the intention of implementing a MIS that would reduce the burden on local programs, data collection has become more complicated and time-consuming at the local level because the participating agencies have different data reporting requirements; however the cost of this type of MIS is prohibitive. State staff anticipate that demands on local staff will lessen when staff become accustomed to the system.

D. DATA USES

Data are used for state and federal reports, research, and budget planning. Community colleges are given copies of data aggregated by their college and statewide. They use these data to compare their progress to statewide development, to plan their programs, and to bolster grant requests.

1. SHARING DATA

There are no formal efforts to share data among state-level programs. State staff for all adult education programs are located in the same office and meet periodically.

2. COLLABORATIVE DATA COLLECTION EFFORTS

The Client Information System is a collaborative effort of the state offices managing JTPA 8%, AEA, state, and Perkins Vocational Education Act funds. Each community college submits a tape with information about all of its students; state MIS office staff separate

data by funding sources for each program. One of the Board's largest programs is Developmental Education, which provides remedial education services for students in vocational programs in colleges. Carl Perkins Act 8% funds pay for this program.